

INSTITUTE *of* STATISTICS

Oxford

Bulletin Vol. 9

May, 1947

No. 5

WORKING CLASS INCOME & HOUSEHOLD EXPENDITURE

PART I: INCOME & EXPENDITURE ON NON-FOOD ITEMS

(1) INTRODUCTORY

The inquiry into the household expenditure of working-class families undertaken by us in the summer of 1946 was the eighth in this series, which started in 1940. The method of sampling employed was similar to the methods adopted for our previous inquiries, and the household accounts were obtained for a consecutive fortnight in June or July¹ from families of urban workers with at least one dependent child at home.²

The original purpose of this series of surveys was the collection and analysis of data indicative of the main economic effects of war-time conditions on working-class housekeeping, and it was intended to conclude it at the end of the war. However, the continuation of serious shortages and of rationing made it desirable to carry on beyond this date, and we decided upon two more inquiries, in 1946, and, we hope, in 1947.

Since our samples are small and full co-operation from the housewives could be secured only once a year for a fortnight, the resulting data call for careful interpretation. Only two sets of the figures obtained by us can be considered fully representative in themselves, *viz.*, those referring to the purchases of food and those referring to rent.³ So long as we obtained no statements of family income the figures of outlay on clothing and miscellaneous items were important mainly as a check on the figures of total housekeeping money. Their value has been greatly enhanced since, in more recent years, a substantial proportion of the families were willing to reveal their total income. The different groups of expenditure can thus be set out against this limiting background, which removes much of the inherent indeterminateness of some of the data. We may not always know the complete expenditure on a group of items; but we now do know the limits of potential expenditure on it in relation to the expenditure on other items.

¹ A few accounts cover a later period.

² Except in those instances where the family had contributed to earlier samples and the children have since left school and become earners.

³ Since our samples refer to the summer months, the figures of outlay on fuel and lighting show, of course, a seasonal bias, although this is to be found probably mainly in the figures of consumption of gas and electricity, as most of the families seem to purchase during the summer coal stocks for the winter.

(2) THE STRUCTURE OF THE SAMPLE

(a) *General*

The collection of our sample was again made possible through the generous assistance of voluntary helpers—university teachers, heads of settlements, etc.—in the several towns. Unfortunately, many of the housewives approached felt too tired and overburdened with housekeeping problems to co-operate, and only 151 families supplied a completed household account for a fortnight, as compared with 155 families in 1945, and 226 in 1944. Nevertheless, the number of persons covered by the accounts was slightly larger in 1946 than in 1945, *viz.*, 727 as against 712. No accounts were obtained from Lincoln, St. Helens, and Dundee, which between them were represented in 1945 by 18 families. On the other hand, Reading, which had dropped out of our sample in 1945, came in again with 11 accounts covering the household expenditure for 55 persons.

In 1945, the total number of families that had kept an account for us also in the preceding year, was 111; of these, 85 had remained *unchanged* in structure while 26 had *changed*, either on account of the birth of a child, the demobilization of a member of the family, the marriage of a son or a daughter, or for some other reason. In 1946, the total number of household accounts which were thus comparable for two consecutive years, was 83. There were 59 *unchanged* and 24 *changed*¹ families. Sixty-eight accounts came from families that had not contributed to our sample in 1945; they are styled in this paper *new* families.

(b) *The Geographical Distribution of the Sample*

In Table I is set out the geographical distribution of the families that kept accounts for us in 1946, subdivided into *unchanged*, *changed*, and *new* families. It presents a first outline of the sample, drawn up by means of the data of

TABLE I *Geographical Distribution of Families*

	Un- changed	Chang- ed	New	Total	No. of Persons per Family	'Man' Value per Person	Food p. 'Man' p. Wk.	Rent* p. Fam. s. d.	Fuel and Light p. Week s. d.
(1) Birmingham	4	2	8	14	4.9	0.75	15 4½	10 0½	8 9½
(2) Glasgow	4	—	8	12	4.2	0.71	16 6½	8 5	8 3½
(3) Leeds ...	9	1	—	10	4.2	0.82	15 0½	12 7	8 5
(4) Liverpool	11	7	8	26	5.6	0.81	13 7½	13 0½	9 8½
(5) London	1	1	9	11	5.7	0.71	15 5½	15 7½	8 10½
(6) Manchester	7	4	4	15	5.1	0.75	14 10½	12 0½	7 7
(7) Newcastle	1	2	2	5	4.0	0.76	15 4½	12 0	4 2
(8) Oxford ...	3	2	2	7	5.9	0.76	12 5½	12 0	7 0
(9) Reading	—	—	11	11	5.0	0.75	15 5½	9 4	6 6
(10) Sheffield	5	—	7	12	4.8	0.79	15 11	10 11½	5 0½
(11) Southampton	10	5	2	17	4.0	0.79	16 4	19 3½	9 9½
(12) Swindon	4	—	7	11	3.7	0.78	15 8½	18 3	8 0½
Total, 1946	59	24	68	151	4.8	0.77	15 0½	12 5½	8 1½
Total, 1945	85	26	44	155	4.6	0.77	14 2½	13 0½	7 10½

*Excluding the following 19 families living rent free or buying their houses: Leeds, 1; Liverpool, 1; Manchester, 2; Newcastle, 2; Southampton, 7; Swindon, 6.

†Average for 138 families.

¹ Besides other changes in their structure, 7 children were born to these families since our survey in 1945.

family structure and of expenditure on food, rent, and fuel and lighting. The largest difference in average expenditure on food prevailed between the 7 families from Oxford and the 12 families from Glasgow, the former spending on food 12s. 5½d. per 'man'¹ per week and the latter 16s. 6¼d. The families from Glasgow paid the lowest rent—8s. 5d. per family per week—those from Oxford about the average rent, and the families from Southampton the highest, viz., 19s. 3¾d. per family per week. It is, perhaps, necessary to repeat here a warning given by us on previous occasions: the average figures of rent obtained from these household accounts must not be taken as an indication of the relative levels of working-class rents in the different towns. The figure for Glasgow falls probably roughly into perspective, since in general rents are lower in Scotland than in England. The accommodation of some of the families in Glasgow is, however, very unsatisfactory, and several of the housewives stated emphatically that they would gladly pay considerably more than their present rent for more adequate housing. On the whole, the average rent paid by the families of our sample is largely determined by the locality from which the sample has been drawn. In some instances, it comes mainly from new housing estates where rents are relatively high, while in others it was collected from families living in old parts of their town where lower rents prevail.² No explanation can be offered for the differences in the outlay on fuel and lighting, except as regards the families from Newcastle, most of which purchased coal at reduced prices, since their main earners are employed in the coal mining industry.

The average size of the family should be considered together with the 'man' value per person, for the lower this 'man' value the larger the proportion of young children. The families from Leeds and Liverpool thus contained on the average the largest number of persons over 14 years old, and those from Glasgow and London the smallest number.

The two bottom rows in Table I compare the averages for 1945 and 1946.³ They bring out the fact that the average family in 1946 was slightly larger than in 1945, but that its relative structure was approximately the same, since for both years the 'man' values per person are identical. The average figures for the two years of outlay on food, rent, and fuel and lighting, must be analysed in some detail before an interpretation can be attempted.

(c) *The Economic Outline*

In the absence of full information regarding family income, standardized data of expenditure on food supply a serviceable gauge for an estimate

¹ The figures of average 'man' values are based on the following scale: adult male, 1.00; adult female, 0.85; children, from 0.33 to 0.70, with an average of 0.55. The values for children are set out in more detail in Part II of this paper. This scale of 'man' values is employed by us always unless, in some sections of Part II, explicit reference is made to a different scale.

² Our helpers in the different towns arrange for the collection of household accounts from families with whom they are acquainted through social work. Only through such intimate connexion with the individual household is it possible to attain the precision of data necessary to give validity to a small sample.

³ 1945 and 1946 are used in this paper as a brief reference to our sampling periods in these years.

of the standard of living of a family. The averages of food expenditure per 'man' of the families from the different towns, given in Table I, may, of course, disguise wide ranges of food expenditure of individual families, but in Table II the families are graded systematically according to their

TABLE II
Expenditure on Food Compared with Other Household Expenditure

1946 Outlay on Food per 'Man' per Week	1945 Number of Families Persons per Family		Number of Fams. Persons per Family		1946 'Man' Value per Person	Av. out- lay on Food p. 'Man' p. Week	Total House- hold out- lay ¹ p. Week <i>excluding Housing²</i> p. 'Man' p. Week	Outlay or Rent p. fam. ³ p. Week
Under 9s.	—	—	2	5.0	0.78	7 10½	12 10	15 5½
9s.—10s.	4	5.8	—	—	—	—	—	—
10s.—11s.	9	5.3	9	7.9	0.73	10 4	18 1½	13 3½
11s.—12s.	19	5.7	9	6.7	0.77	11 6½	20 6½	12 7½
12s.—13s.	20	5.5	15	4.9	0.79	12 8	23 10½	13 0½
13s.—14s.	18	5.0	25	5.0	0.77	13 5½	24 5½	11 2½
14s.—15s.	22	4.5	16	4.7	0.78	14 5	23 11½	12 7½
15s.—16s.	20	4.1	10	4.2	0.72	15 5½	28 4	13 1½
16s.—17s.	7	3.7	16	4.4	0.76	16 6½	28 7	10 5½
17s.—18s.	12	3.8	15	4.3	0.76	17 7	30 5	14 3½
18s.—19s.	8	3.4	10	4.2	0.82	18 5½	31 9½	14 10½
19s.—20s.	6	3.2	10	4.5	0.78	19 6	36 10	11 10½
20s.—23s.	7	3.3	8	3.5	0.75	21 4½	45 11½	12 0½
23s. & over	3	3.7	6	3.3	0.75	24 9½	41 1	10 3
Total	155	4.6	151	4.8	0.77	15 0½	26 10½	12 5½

¹ Including outlay on food.

² Outlay on housing comprises outlay on rent (including rates), mortgage charges, and rates.

³ Excluding 19 families living rent free or buying their houses, in the following groups of food expenditure: 11s.—12s., 1 family; 12s.—13s., 2 families; 13s.—14s., 6 families; 14s.—15s., 3 families; 15s.—16s., 1 family; 16s.—17s., 1 family; 17s.—18s., 2 families; 19s.—20s., 1 family; 20s.—23s., 1 family; 23s. and over, 1 family.

outlay on food 'per man'. With outlay on food we compare outlay on rent and total household expenditure including outlay on food but excluding outlay on housing. By 'housing' we mean expenditure on mortgages and house purchase instalments as well as outlay on rent and rates, and on rates only, while 'rent' refers only to the payments made to landlords; 'rent' in this context includes rates.

Only 132 of the 151 families lived in rented accommodation. Since outlay on housing, and in particular outlay on rent, is determined by the type of accommodation available to a family, it remains not only unaffected by variations in the family income but often also bears no relation to the absolute size of this income. In Table II we find that the two families with the lowest outlay on food per 'man' paid the highest average rent per family, *viz.*, 15s. 5½d. per week. The next two groups with the highest average rents are composed of the families spending from 17s. to 19s. per 'man' per week on food, while the lowest average rent—10s. 3d.—was paid by two families

with a food expenditure of over 23s. per 'man' per week. On the whole there is little indication of any connexion between outlay on rent per family and outlay on food per 'man'.

Total household expenditure bears, of course, some relation to outlay on food, since in general outlay on food constitutes a very large proportion of total household expenditure, especially if cost of housing is omitted from it. Household expenditure has been calculated by us also per 'man' per week. It is interesting to find that if we deduct outlay on food from total household outlay, the residue—expenditure on non-food items other than housing—varies on the whole much less, except in the three highest expenditure groups, than outlay on food, and shows by no means always the same trend. This apparently has little or nothing to do with the structure of the family; for if, for example, we consider the food expenditure groups from 12s. to 13s. and from 14s. to 15s., we find that they both relate to practically the same average household expenditure, as defined above. There were only slight differences in the number of persons per family and in the 'man' values per person. Differences in the expenditure on non-food items of one family as compared with another of about the same structure and range of income may arise from various causes, but perhaps the most general one seems to be a family's preference either for better food or for semi-luxuries of the non-food kind, which latter, as regards household expenditure, are represented mainly by tobacco and visits to the cinema.

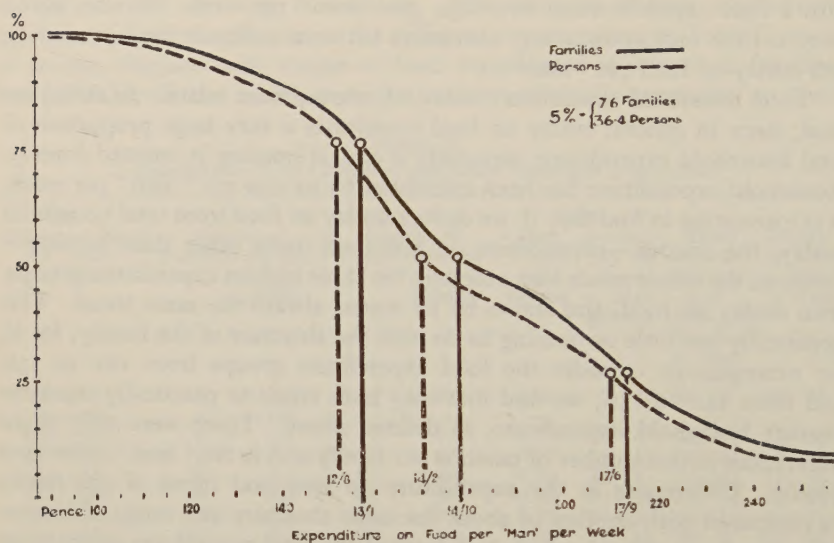
In the higher ranges of expenditure discrepancies between relative household expenditure and expenditure on food become less marked. This is as one would have expected it to be; for families with a fairly high income are able to enliven their diet with certain higher priced foods without having to seriously curtail, or cut out altogether, their consumption of non-food semi-luxuries.

Since it appears rather startling to find two families with an expenditure on food of less than 9s. per week and a household expenditure which, as compared with that of the other families, is even disproportionately lower, a word of explanation seems indicated, in order to dispel the suggestion that in these cases the low outlay reflects exceptionally low incomes. One of these families actually contains four earners, and expenditure out of housekeeping money on non-food items was low since they all paid for their personal requirements¹ out of their pocket money, the amounts of which were not given. The other family only expended 35 per cent of their income on food, and there was a margin between their total stated outlay, including outlay on rent, and their total income, of approximately 25 per cent. Both these families contributed accounts to our sample for several years, and it seems that they are catered for by exceptionally careful housewives.

Diagram A compares the distribution of the families with that of the persons of our sample, in relation to a given expenditure per 'man' on food; *i.e.*, it compares the standard of living with the average size of the family,

¹ It seemed possible that they also purchased additional food. The housewife could supply no information on this point.

DIAGRAM A



Cumulative Frequency Curves of Families and Persons in Relation to their Expenditure on Food

using expenditure on food per 'man' as a rough gauge. The first quarter¹ of the number of persons is composed of 28 families, having an average of 6.5 persons per family; the second consists of 37 families, with 4.9 persons per family, the third of 42 families, average 4.6 persons, and the last quarter of 44 families, with an average of 4.1 persons.² Thus the central 50 per cent of the persons lived in families that, on the average, closely corresponded to the average size of the families of the whole sample, *viz.*, 4.8 persons per family. Their outlay on food per 'man' per week ranged from 12s. 8d. to 17s. 6d., with an average of 14s. 7½d., as compared with an average of 15s. 0¼d. for all the 151 families.

(d) *The Composition of the Families*

The composition of the families according to age and sex groups is given in Table III. The data for the *unchanged* and *changed* families are shown for 1945 and 1946.

As regards the *unchanged* families we find, of course, a slight rise in the 'man' value per person—from 0.77 to 0.79—as a result of the advancing to a higher age group of a number of persons. The average 'man' value of the *changed* families was the same for both years, the relative increase in the

¹ The quarters are, of course, only approximations, since individual families could not be split up. The first 'quarter' thus comprises 183, the third 184, and the second and fourth comprise each 180 persons.

² Diagram A as shown has been cut so as to shape it more conveniently for reproduction in the BULLETIN. There were 8 families, consisting of 26 persons, with a food expenditure per 'man' of over 21s. 5d. The highest outlay per 'man' per week was 25s. 10d., spent by a family of 3 persons with a total 'man' value of 2.35.

TABLE III
Average Structure of Families

			Age Group	Unchanged Fams. (59)	Changed Fams. (24)	New Fams. (68)	All Fams. (151)
				1945	1946	1945	1946
Males ...	...	... 18 & over	1.10	1.19	1.04	1.29	1.13
Females...	...	... 18 & over	1.05	1.14	1.50	1.38	1.15
Males ...	...	... 15—17	0.19	0.12	0.21	0.12	0.14
Females...	...	... 15—17	0.22	0.34	0.29	0.67	0.34
Children	...	... 6—14	1.15	1.08	1.46	1.13	1.30
Children	...	... under 6	0.73	0.57	0.62	0.87	0.75
Persons per Family ...			4.44	4.44	5.12	5.46	4.81
'Man' Value per Person			0.77	0.79	0.78	0.78	0.77

number of adults being counterbalanced by a relative increase in the number of young children. The lowest average 'man' value obtained for the persons of the *new* families. These families contained nearly as many children of school age and under, as adults and juveniles, *viz.*, 2.4 as compared with 2.5, in an average family of 4.9 persons.

(3) HOUSEHOLD EXPENDITURE AND THE COST OF LIVING INDEX

It is interesting to note that the *new* families had a higher average outlay on food than either the *changed* or the *unchanged* families, in spite of their smaller number of earners and, in particular, of adult male earners. The respective figures will be found in Table IV, which gives the total outlay,

TABLE IV
Household Expenditure of Three Groups of Families

			Per 'Man' per Week			Index of Expenditure 1945=100	
			Unch. Fam.	Changed Fam.	New Fam.	Unchanged Families	Changed Families
			1946	1946	1946		
Food ...	...	...	14 11½	14 2½	15 4½	102½	101½
Housing ...	...	...	3 8½	2 10½	2 11½	91½	98½
Clothing ...	...	...	2 0	2 2	2 11	87	112
Fuel and Lighting ...	...	...	2 4½	2 0½	2 1½	101	109
Miscellaneous ...	...	...	8 9	5 6½	6 8½	97½	91½
Total ...	...	...	31 9½	26 10½	30 0½	98½	100½

per 'man' per week, on the five main groups of household expenditure employed by the Ministry of Labour for the calculation of their cost of living index. Besides the actual outlay per 'man' per week in 1946, of the three groups of families, there will be found, for the *unchanged* and *changed* families, its relation to the corresponding outlay in 1945, in the form of indices, taking the outlay in 1945 on each group as 100. These indices show that the total household expenditure per 'man' of the families that supplied accounts for both years, was about the same in 1945 as in 1946. The actual fall per family in the cost of housing of the *unchanged* families was only about

6 per cent, $2\frac{1}{2}$ per cent of the reduced index figures resulting from the increased 'man' value per person of these families, from 0.77 to 0.79. For the *changed* families cost of housing per family had risen from 100 to 105, the decline by only $1\frac{1}{2}$ per cent shown in Table IV being due to the larger number of persons per family. The figures for this particular item of expenditure as given in Table IV are therefore somewhat unrealistic. But outlay on housing is probably the only major item of household expenditure that, at least in the short run, is of necessity unaffected by variations in the size or age structure of a family. For all the other main items the trends of expenditure from one year to another of different groups of families can be compared only after the families have been standardized, which we have done in terms of 'man' values.

A comparison of the relative outlay on the items enumerated in Table IV with the weights of the Ministry of Labour index, adjusted for rises in prices from 1914 to 1945 and 1946, is made in Table V. There appears to be some

TABLE V
Weekly Family Expenditure

	1945		1946		1945		1946	
	155 Families		151 Families		Ministry of Labour Cost of Living Index Weighting ¹		Ministry of Labour Cost of Living Index Weighting ¹	
	incl. Miscellaneous	excl. Miscellaneous	incl. Miscellaneous	excl. Miscellaneous	incl. Living Index	excl. Living Index	incl. Living Index	excl. Living Index
	%	%	%	%	%	%	%	%
(1) Food ...	47	63.4	50	65.7	50.5	53.5	49.9	53.0
(2) Housing ...	12	16.2	11	14.1	12.9 ²	13.7 ²	13.2 ²	13.9 ²
(3) Clothing ...	8	10.5	8	10.6	20.3	21.5	20.4	21.6
(4) Fuel and Light ...	7	9.9	7	9.6	10.7	11.3	10.8	11.5
(1)–(4) ...	74	100.0	76	100.0	94.4	100.0	94.3	100.0
(5) Miscellaneous ...	26		24		5.6		5.7	
Total Outlay ...	100		100		100.0		100.0	
Weekly Outlay ...	s. d.		s. d.					
per Family ...	106 6 $\frac{3}{4}$		111 5					
per 'Man' ...	30 2 $\frac{1}{4}$		30 7 $\frac{1}{4}$					

¹ Corrected for the rise in prices from July 1st, 1914, to June–July, 1945 and 1946.

² Rent only (incl. rates).

³ In 1945, the family consisted of 4.6 persons with an average 'man' value per person of 0.77.

approximation between the relative figures obtained by us for outlay on food and housing and those of the Ministry of Labour index, if the outlay on 'miscellaneous' items is included. Yet 'miscellaneous' items took up in the Ministry of Labour index less than 6 per cent, in both June–July 1945 and 1946, while the proportion of household outlay obtained by us for this group was 26 per cent in 1945 and 24 per cent in 1946. Moreover, our figures in Table V only refer to total household expenditure, while the Ministry of Labour index purports to cover total expenditure of working-class income. The margin found by us to exist between total household expenditure and total income, *i.e.*, the proportion of income retained by the earners, is substantial. We shall revert to this point later; it suffices here to say that

there can be no doubt that average expenditure on food and housing are much overweighted in the official index.

At the bottom of Table V will be found the actual weekly household outlay, per 'man' and per family, of all the families of our samples in 1945 and 1946. The outlay per family was larger by about 4s. 10d. in 1946, but owing to the somewhat larger size of the average family in 1946, the outlay per 'man' was virtually the same in both years.

The analysis of the expenditure on food of the families of our sample will be deferred to Part II of this paper. In the following sections of Part I we shall consider mainly the data of non-food expenditure.

(4) EXPENDITURE ON NON-FOOD ITEMS

(a) *Cost of Housing and Rent*

In comparing the data of household expenditure with the 'weights' of the Ministry of Labour index we employed the more comprehensive term 'housing' instead of 'rent', since the outlay of the families of our sample represents in some instances not rent and rates but mortgage charges, house purchase instalments and rates, or, when the house is owned, rates only. Three of the 151 families in 1946 paid nothing at all for their housing accommodation, which was obtained in connexion with their work, and two families paid rates, but the amounts were unknown to the housewives. The total outlay on housing accommodation obtained from our sample, divided by the total number of families or the total number of 'men' represented by them, produces our data of average expenditure on 'housing'. This amounted per family per week to 11s. 11d., as against the outlay on rent and rates per family paying these charges, of 12s. 5½d. If we omit the five families that stated no outlay on housing accommodation, we obtain an average cost of housing, per family per week, of 12s. 5d., virtually the same as the average outlay of the 132 families that rented their houses.

There was a decline in the outlay on housing per family of the *unchanged* families, from 1945 to 1946, of about 6 per cent, which was mainly due to reductions in mortgage interest and purchase instalments. The reason for the increase of 5 per cent in the housing charges of the *changed* families, is less clear. In a few instances rates seemed to have risen, and some of the families apparently paid reduced rents or purchase instalments during the absence on military service of an earner. The outlay on housing per family per week was, in 1946, for the *unchanged* families, 13s. 2d., for the *changed* families, 12s. 3d., and for the *new* families, 10s. 9d. Of the five families that stated no outlay on housing, two belonged to the group of *unchanged*, two to the group of *changed*, and one to the group of *new* families. With these families omitted from our calculations, we obtained the following figures of outlay: *unchanged* families, 13s. 7d., *changed* families, 12s. 9d., and *new* families, 10s. 11d. per family per week.

(b) *Clothing*

Outlay on clothing out of housekeeping money amounted, per man per

week, for the unchanged families to 2s., for the *changed* families to 2s. 2d., and for the *new* families to 2s. 11d. These figures however only represent part of the actual expenditure on clothing. In most instances they exclude all substantial purchases of clothes for adults, although some of these may be covered by payment into clothing clubs out of housekeeping money. These payments are included under the heading of 'clothing'; they are mainly savings or instalments for purchases of children's clothes. The housewives appear to pay mostly only for small items of apparel, children's wear, and repairs, in particular of shoes, for themselves and the children. Clothes and shoes for adults are as a rule bought by the earners, even the housewife's clothes being often paid for out of the husband's savings.

It is doubtful whether a sample covering a longer period than a fortnight could materially improve the data relating to outlay on clothing, unless it were extended over at least one whole year. Failing this, the most satisfactory course is, perhaps, to consider outlay on clothing in conjunction with outlay on 'miscellaneous' items and, if possible, total income. This at least will show whether and to what extent the outlay on clothing disbursed by the housewife has a bearing on the general standard of living of the family.

(c) *Fuel and Lighting*

The outlay on fuel and lighting is given in some detail in Table VI. Total outlay on fuel and lighting of the *unchanged* families had risen by over 4½ per

TABLE VI
Weekly Family Expenditure on Fuel and Lighting

Group of Families	Total Fuel & Lighting Outlay		Index 1945=100	Coal Outlay	Gas Outlay	Electricity Outlay	Other ¹ Outlay
Unchanged (59)	...	...	...	...	...	...	...
1945	...	7 11½	100.0	3 6½	2 2½	1 8½	5½
1946	...	8 3½	104.6	3 9	2 5½	1 9½	3½
Changed (24)	...	...	...	...	...	...	...
1945	...	7 7	100.0	3 5	2 1½	1 8½	4½
1946	...	8 9½	115.5	3 6½	2 9½	2 0½	4½
New (68)	...	7 9	...	3 2	2 10	1 3½	5½
All (151)	...	8 1½	...	3 5½	2 8½	1 7½	4½
All (155) 1945	...	7 10½	...	3 7½	2 2	1 7½	4½

¹ Including firewood, paraffin, candles, matches, firelighters.

cent since 1945, while that of the *changed* families had increased by 15½ per cent. During the same period¹ the Ministry of Labour index of cost of fuel had advanced by about 0.4 per cent. In the case of the *changed* families the increase in the number of infants on the one hand and of adult male earners on the other may account to some extent for the larger expenditure, since more fuel may have been required for washing and possibly also for cooking. The largest increase occurred in the outlay on gas of the changed families, and, next to it, in their outlay on electricity, the former amounting to nearly 34 per cent and the latter to nearly 20 per cent of their outlay in 1945. The

¹ June-July, 1945 to June-July, 1946.

Ministry of Labour index contains no reference to electricity, but for the price of gas it showed a rise by 2.6 per cent, from June–July 1945 to June–July 1946. The increase in the volume of gas consumed by the *changed* families was thus approximately 30 per cent, while for the *unchanged* families it was over 9½ per cent, of the families' consumption in June–July 1945. The slight rise in the purchases of coal, of about 5 per cent for the *unchanged* and about 4 per cent for the *changed* families¹, may merely indicate a somewhat larger accumulation of stocks in 1946 than in 1945. Since, however, this was certainly not experienced in general, the higher figures for both groups of families in 1946 suggest also a somewhat higher consumption of coal by these families, during our sampling period in 1946, as compared with that in 1945.

(d) *Miscellaneous Items*

The group of 'miscellaneous' items covers a wide range. It includes expenditure on goods and services, the main of which are: all kinds of household requirements, seeds and plants, garden implements, animal foods, cleaning materials, laundry, voluntary insurance, and clubs, medical attention, education, transport, amusements, newspapers, drink, and tobacco. Only part of the family expenditure on these items can be ascertained by us, since many of them are paid for direct by the earners. Indeed, as will be seen from Table VIII, not even outlay on such a general item as newspapers was stated by all the housewives.

The outlay on 'miscellaneous' items is given in Table IV, per 'man' per week, for the *unchanged*, *changed*, and *new* families. In Tables VIIa and VIIb, the 151 families of our sample have been split up into those stating their total income (75)² and those stating household outlay only (76). These Tables also show the outlay per 'man' per week. We are not yet concerned with the data in Tables VIIa and VIIb in general, but is more helpful to discuss expenditure on 'miscellaneous' items with reference to them than to Table IV, since from the analyses of our samples in previous years we have learned that, on the whole, families that reveal their income will tend to show a higher outlay on 'miscellaneous' items out of housekeeping money than those that only account for expenditure of housekeeping money. The reason for this seems to be that when the housewife knows how much everybody earns she is more frequently entrusted with purchases of the earners private requirements.

The figures per 'man' of outlay on 'miscellaneous' items in Tables VIIa and VIIb show, for the *changed* families that stated their income in 1946, an outlay but 2d. higher than that of the *changed* families that only stated their household expenditure. However, in families with about the same standard of living total outlay on 'miscellaneous' items will probably be affected less by the number of persons in the family than by the number of

¹ The Ministry of Labour index showed an increase in the cost of coal of about 0.3 per cent, while the increase in outlay of the *unchanged* families amounted to approximately 5.3 per cent, and that of the *changed* families to 4.3 per cent.

² 'New' families in Tables VIIa and IXa include also all those *unchanged* and *changed* families that divulged their total income in 1946 but not in 1945.

earners, since the demand for many items in this group comes mainly from adult earners.¹ Tables IXa and IXb show the structures of the families, whose expenditure is set out in Tables VIIIa and VIIIb. From them it will be seen that the 10 *changed* families that only stated their household expenditure had, per family, 0.4 earners over 15 years more than the 12 *changed* families that divulged their income. If we consider the outlay on 'miscellaneous' items per family, we obtain the following figures, the first one in each group for the families that stated their income and the second for those that stated household outlay only: *unchanged* families, 1945, 29s. 7d.—29s. 1d.; *unchanged* families, 1946, 32s. 10d.—24s. 9d.; *changed* families, 1945, 28s. 5d.—19s. 9d.; *changed* families, 1946, 25s. 2d.—20s. 6d.; 'new'² families, 1946, 25s. 10d.—25s. 7d. It should be noted that the 'new' families that stated household outlay only had per family about 0.3 earners over 15 years more than the 'new' families that stated their income. Amongst the *unchanged* families that only declared their household expenditure in 1945, there were a few paying substantial instalments on furniture, while no such payments were made by any of the *unchanged* families that stated their income in 1945 and 1946. This may partly account for the relatively high outlay per family of the former group, in 1945.

In Table VII we have analysed the outlay on some of the more general main items of 'miscellaneous' expenditure, *viz.*, drink, tobacco, newspapers,

TABLE VII
Expenditure on Miscellaneous Items and of Housekeeping Money

			1946			1946		
			75 Families Stating Income			76 Families Stating Household Outlay Only		
			Families buying as % of 75 Families	Wkly. Outlay p. Fam. Actually buying	Average of Group of 75 Fams.	Families buying as % of 76 Families	Wkly. Outlay p. Fam. Actually buying	Average of Group of 76 Fams.
Drink*	...	...	43	3 11½	1 8½	33	2 6½	0 10
Tobacco	...	...	76	8 5½	6 5½	57	7 8	4 4
Newspapers	...	...	97	1 7½	1 7½	95	1 6½	1 5½
Amusements	...	...	79	5 8	4 5½	70	4 6½	3 2
Insurances and Clubs†	...	...	96	4 3½	4 1½	100	4 7½	4 7½
Total Av. Outlay	...	...			18 4			14 4½
34 Unchanged Families Stating Income								
			1945			1946		
			Families buying as % of 34 Families	Wkly. Outlay p. Fam. Actually buying	Average of Group of 34 Fams.	Families buying as % of 34 Families	Wkly. Outlay p. Fam. Actually buying	Average of Group of 34 Fams.
Drink*	...	...	50	3 0½	1 6½	47	4 11½	2 4
Tobacco	...	...	71	9 3	6 6½	76	8 9½	6 8½
Newspapers	...	...	97	1 9	1 8½	100	1 8½	1 8½
Amusements...	...	...	76	4 9	3 7½	79	6 11	5 6
Insurances & Clubs†	...	...	100	4 5½	4 5½	94	4 3	4 0
Total Av. Outlay	...	...			17 10			20 3½

¹ Under this we may even include 'treats' for children, since they are non-necessities.

² We shall denote 'new' families by putting the adjective in inverted commas whenever we are dealing with the group of families that stated their total income for the first time in 1946, and which includes 7 *unchanged* and 2 *changed* families.

18 Unchanged Families Stating Household Outlay Only

		1945			1946		
		Families buying as % of 18 Families	Wkly. Outlay Actually buying	Average of Group of 18 Fams.	Families buying as % of 18 Families	Wkly. Outlay Actually buying	Average of Group of 18 Fams.
Drink*	...	50	3 3½	1 7½	28	4 2½	1 2
Tobacco	...	44	10 1½	4 5½	39	8 9½	3 5
Newspapers	...	100	1 7½	1 7½	100	1 10	1 10
Amusements...	...	56	6 9½	3 9½	72	5 2½	3 9½
Insurances & Clubs†	...	94	5 4½	5 0½	100	4 7	4 7
Total Av. Outlay				16 6½			14 9½

* Including soft drinks. † Excluding compulsory insurances and 'clubs' for specific purposes, *viz.*, clothing, coal, furniture clubs, etc.

amusements, voluntary insurances and clubs (excluding specified clubs for purchasing clothes, household requirements, and coal), per family per week, of the families that stated their income as well as of those that only stated household expenditure. The first group of averages under each separate heading was obtained by dividing the total weekly outlay on each item by the number of families that made the purchases, while the second group of averages represents the total weekly outlay divided by the *total* number of families in the group. The average outlay on the five items of all 75 families that stated their income was 4s. higher than that of the 76 families that only stated their household expenditure. Total outlay on 'miscellaneous' items out of housekeeping money amounted for the latter group of families to 24s. 9d. and for the former to 28s. 10d. per family per week, *i.e.*, it was for each group about 10s. 6d. more than their average outlay on the items specified in Table VII.

Table VII also shows the comparable figures for 1945 and 1946, for the two groups of *unchanged* families. As regards the *unchanged* families that stated their income, it will be seen that about the same numbers of families accounted in both years for expenditure on the several items, and in general the pattern of expenditure indicates that the figures convey a fairly reliable picture of expenditure on these items out of housekeeping money. The purchases made by the housewives of those *unchanged* families that only stated household expenditure, appear more erratic for the two years. Most likely in these cases, where the housekeeping money tends to be a more rigid sum than in the former, the housewife's expenditure on drinks, tobacco, and amusements, for herself and her family, depends largely on the margin that is left after more essential purchases have been met, and varies accordingly. A sub-sample of only 18 families is, of course, too small to allow us to expect that variations in the outlay of individual families will cancel out.

(5) HOUSEHOLD EXPENDITURE AND INCOME

(a) Comparison between Household Expenditure and Family Income

Of the 151 families that supplied household accounts in 1946, 75 stated the family income.¹ Only through this is it possible for us to attempt an

¹ The larger the number of earners in a family the more difficult it is on the whole to obtain a statement of family income. The 75 families that divulged their total income in 1946 had, per family, 1.4 earners over 15 years old, while the 76 families that only stated household expenditure contained on the average 1.6 such earners.

interpretation of the figures of household expenditure on clothing and miscellaneous items, and to obtain a picture of the interrelation of expenditure on food and expenditure on non-food items.

In Table VIIIa we have set out the household expenditure of the 34 *unchanged*, 12 *changed*, and 29 'new' families—the latter including 7 *unchanged* and 2 *changed* families that did not state their income in 1945—that stated their total family income in 1946. For these families, average expenditure on food was found to have taken up between 33 and 40 per cent of the total net income,¹ expenditure on housing, in 1946, between 6 and 9 per cent, and expenditure on fuel and lighting, between 5 and 6 per cent, while the average proportion of income left for clothing and miscellaneous items, including the unspecified margin of income retained by the earners, represented nearly 50 per cent of the total income, the actual amounts available in 1946 per 'man' per week ranging, for the three groups, from about 16s. to 23s., and, per family, from about 56s. for the 'new' families to over 88s. for the *changed* families.

The figures of household outlay of the remaining 76 families, which did not state their income, are given in Table VIIIb. The proportion spent out of housekeeping money on food was substantially larger only for the *unchanged* families in Table VIIIb, as compared with the *unchanged* families in Table VIIIa. For all the groups of families in Table VIIIb, except the group of *unchanged* families in 1945, the average outlay on 'miscellaneous' items represented a smaller percentage of the housekeeping money than for the corresponding groups of families in Table VIIIa.

The data shown in Tables VIIIa and VIIIb should be considered in conjunction with the data of average family structure that will be found in Tables IXa and IXb. Since the average number of earners over 15 years old in the sub-groups of the families that only stated household expenditure, was in no instance substantially smaller and in some decidedly larger than in the corresponding sub-groups of the families that revealed their income, it seems reasonable to assume that, at least approximately, the relative margins shown by the latter families between income and household expenditure also existed with respect to the former families. Indeed, the larger the proportion of earners in a family the larger will tend to be the proportion of income that is not surrendered into the common pool of housekeeping money, but retained by the earners. It seems therefore that roughly 50 per cent of the average income of the families of our sample was expended on food, rent, and fuel and lighting, while the other half of the income was available for family expenditure on clothing and 'miscellaneous' items, the earners' personal expenditure, and savings. The small amounts of savings given in Table VIIIa mainly refer to savings by means of street collections and children's school savings.

The higher figures in Table VIIIa of income per family of the *unchanged*

¹ All the figures of income used by us exclude direct taxes, contributions to compulsory insurances, and trade union contributions.

WORKING CLASS INCOME AND HOUSEHOLD EXPENDITURE 147

TABLE VIIIa
Expenditure of Income of 75 Families

	34 Unchanged Families		12 Changed Families		29 New Fams. ¹	
	1945	1946	1945	1946	1946	
	Per ' Man ' per Week		Per ' Man ' per Week		per ' Man ' per Week	
Food ...	14 11½	15 4½	14 2	13 5½	14 8½	
Housing ...	4 6	4 1½	2 3½	2 2½	2 11½	
Clothing ...	2 8½	2 3½	2 3½	2 4½	1 10½	
Fuel and Lighting ...	2 4½	2 6	1 10	2 2½	2 2½	
Miscellaneous ...	9 1½	9 9½	6 11½	5 6½	7 4½	
Total Household	33 7½	34 1	27 6½	25 10	29 0½	
Savings ² ...	0 4½	0 11	0 9½	0 10½	0 5	
Unspecified ...	10 9	11 4½	8 5	11 7	6 7½	
Total Income ³ ...	44 9½	46 4½	36 8½	38 3½	36 1½	
<i>Relative Expenditure of Income</i>						
Food ...	44.5	33.4	45.2	33.2	51.5	38.6
Housing ...	13.4	10.1	12.0	8.8	8.3	6.2
Clothing ...	8.0	6.0	6.7	4.9	8.4	6.3
Fuel and Lighting ...	7.0	5.3	7.3	5.4	6.6	5.0
Miscellaneous ...	27.1	20.3	28.8	21.2	25.2	18.9
Total Household	100.0	75.1	100.0	73.5	100.0	75.0
Savings ² ...		0.9		2.0		2.1
Unspecified ...		24.0		24.5		22.9
Total Income ³ ...		100.0		100.0		100.0
<i>Per Family per Week</i>						
Total Income ³ ...	145 5½	155 5	150 3	173 3½	126 11½	
Housing ...	14 7½	13 8½	9 4½	10 1½	10 4½	
Fuel and Lighting ...	7 8½	8 4½	7 5½	10 0	7 9½	

¹ Including *Unchanged* and *Changed* families that did not state their income in 1945.

² Contributions to street and school savings clubs out of housekeeping money.

³ *Net Income*: excluding taxes, compulsory insurances, and contributions to Trade Unions.

TABLE VIIIb Expenditure of 76 Families Stating Household Outlay Only

	18 Unchanged Families		10 Changed Families		48 New Fams.	
	1945	1946	1945	1946	1946	
	Per ' Man ' per Week		Per ' Man ' per Week		Per ' Man ' per Week	
Food ...	14 4½	15 0	13 2½	15 3½	15 4½	
Housing ...	3 8½	3 5½	3 8½	3 10½	2 10½	
Clothing ...	2 0½	1 9½	1 1	2 0½	3 2	
Fuel and Lighting ...	2 0½	2 1½	1 9	1 11½	2 0½	
Miscellaneous ...	8 0½	6 8½	5 1½	5 4½	6 8½	
Total Household	30 2½	29 1½	24 10½	28 7	30 2½	
<i>Relative Expenditure of Income</i>						
Food ...	47.6	51.5	53.0	53.6	50.9	
Housing ...	12.3	11.8	15.0	13.6	9.6	
Clothing ...	6.7	6.2	4.3	7.2	10.5	
Fuel and Lighting ...	6.7	7.4	7.1	6.8	6.8	
Miscellaneous ...	26.7	23.1	20.6	18.8	22.2	
Total Household	100.0	100.0	100.0	100.0	100.0	
<i>Per Family per Week</i>						
Housing ...	13 4½	12 8½	14 5	14 9½	13 1	
Fuel and Lighting ...	7 3½	7 11½	6 9½	7 5½	17 0½	

and *changed* families in 1946, as compared with those for 1945, cannot be taken as an indication of a general increase in individual earnings. The composition of the *changed* families had altered too much to allow of a direct comparison of the figures of income for the two periods, in particular in view of the smallness of this sub-group, while the moderate rise of 10s. per family per week, shown for the *unchanged* families, may largely reflect the fact that the young earners of these families, as they improved their working experience in the course of a year, also improved their earnings. It is true that the *unchanged* families had a smaller number of female earners in 1946 than in 1945, but the female earners in the age group of 18 years and over in 1945 were nearly all housewives, who mostly did part-time work—a woman who worked half a day being counted by us as half an earner—and whose full-time earnings amounted in general to little more than 50s. per week. The most spectacular rise in earnings occurs as a rule in the wages of young men at the end of their training.

(b) *Relative Outlay of Income and Size of Family*

The smallness of our sample makes it imperative to verify as carefully as possible the general validity of our computed data, for families of the selected type. The fairly close approximation of the figures obtained for the different sub-groups is in itself reassuring in this respect. Another test has been applied regarding the main data of relative expenditure, in Tables Xa, Xb, Xc, Xd, and Xe. Since these data yield a much fuller information if they are related to total income, only the accounts of the 75 families that stated their income, have been considered in this context. The families have been arranged in three groups, the first comprising 45 families consisting of less than five persons, the second comprising 23 families with from five to seven persons, and the third represented by seven families of over seven persons. The patterns obtained of the relative expenditure of these 75 families on food, housing, fuel and lighting, and other items, suggest in every case a symmetrical distribution with a distinct central clustering, in most instances even for the sub-groups of families, at least with respect to the typical household expenditure on food, housing, and fuel and lighting. For the remaining part of the income we can scarcely expect a 'normal' pattern for very large families, since, as we have pointed out before, the relative structure of the family—*i.e.*, the number of earners in relation to the number of dependents—and this residue are not independent factors.

Tables Xa, Xb and Xc are self-explanatory. Tables Xd and Xe analyse outlay on 'miscellaneous' items, clothing, and the unspecified margin between household expenditure and income. Household expenditure on 'miscellaneous' items only is dealt with in Table Xd. The picture obtained, although interesting, is not very revealing. In Table Xe we have widened the field of expenditure—or potential expenditure—first, by including the unspecified margin together with household outlay on 'miscellaneous' items, and secondly, by adding to this the outlay on housekeeping money on

TABLE IXa
Structure of Families Stating Family Income

	34 Unchanged Families		12 Changed Families		29 New Fams. ¹ 1946
	1945	1946	1945	1946	
	Per Family		Per Family		Per Family
Earners, 18 and over :					
Male	1.12	1.18	1.08	1.00	0.97
Female	0.18	0.12	0.46	0.63	0.05
Earners, 16—18 :					
Male	0.06	0.06	0.25	0.08	0.07
Female	0.09	0.06	0.17	0.33	0.10
Earners, under 16 ...	0.15	0.12	0.08	0.25	0.07
Non-earning House-					
wives	0.82	0.96	0.88	0.88	0.95
Dependent Children	1.73	1.65	2.33	2.75	2.55
Total	4.15	4.15	5.25	5.92	4.76

¹ Including *Unchanged* and *Changed* families that did not state their income in 1945.

TABLE IXb
Structure of Families Stating Household Outlay Only

	18 Unchanged Families		10 Changed Families		48 New Fams. 1946
	1945	1946	1945	1946	
	Per Family		Per Family		Per Family
Earners, 18 and over :					
Male	1.11	1.11	1.10	1.50	1.06
Female	0.19	0.31	0.60	0.30	0.15
Earners, 16—18 :					
Male	—	—	0.20	—	0.08
Female	0.11	0.06	0.10	0.30	0.21
Earners, under 16 ...	0.11	0.06	0.10	0.30	0.15
Non-earning House-					
wives	0.98	0.96	1.00	1.00	0.98
Dependent Children	2.28	2.28	1.70	1.30	2.45
Total	4.78	4.78	4.80	4.70	5.08

TABLE Xa
Outlay on Food Compared with Income

Size	Families Total No.	Food Expenditure Representing of Income					
		under 20%	% 20—30	% 30—40	% 40—50	% 50—60	%
Under 5 Persons ...	45	2	12	19	12	—	—
5—7 Persons ...	23	—	4	5	8	6	6
Over 7 Persons ...	7	—	—	2	3	2	2
Average 4.7 Persons	75	2	16	26	23	8	8

TABLE Xb
Outlay on Housing Compared with Income

Size	Families Total No.	Expenditure on Rent Representing of Income					
		under 4%	% 4—8	% 8—12	% 12—16	% 16—20	%
Under 5 Persons ...	45	5	13	17	8	2	2
5—7 Persons ...	23	2	10	8	1	2	2
Over 7 Persons ...	7	1	2	3	—	1	1
Average 4.7 Persons	75	8	25	28	9	5	5

TABLE Xc

Outlay on Fuel and Lighting Compared with Income

Size	Families	Expenditure on Fuel and Lighting						Representing of Income % 10 and over
		Total No.	under 2%	% 2-4	% 4-6	% 6-8	% 8-10	
Under 5 Persons	...	45	3	9	13	11	5	4
5-7 Persons	...	23	1	4	8	5	3	2
Over 7 Persons	...	7	—	1	3	—	2	1
Average 4.7 Persons		75	4	14	24	16	10	7

TABLE Xd

Outlay on Miscellaneous Items Compared with Income

Size	Families	Expenditure on Miscellaneous					Representing of Income % 30-40
		Total No.	under 10%	% 10-20	% 20-30	% 30-40	
Under 5 Persons	...	45	3	22	15	5	5
5-7 Persons	...	23	3	10	7	3	3
Over 7 Persons	...	7	—	5	1	1	1
Average 4.7 Persons		75	6	37	23	9	

TABLE Xe

Outlay on Miscellaneous Items, Clothing, and Money Retained by Earners, compared with Income

Size	Families	Expenditure on Miscellaneous Items and Money Retained by Earners							Representing of Income % 70 and over
		Total No.	under 20%	% 20-30	% 30-40	% 40-50	% 50-60	% 60-70	
Under 5 Persons		45	1	4	8	16	8	7	1
5-7 Persons	...	23	1	6	6	5	4	1	—
Over 7 Persons		7	—	2	4	—	1	—	—
Average 4.7 Pers.		75	2	12	18	21	13	8	1

Size	Families	Expenditure on Clothing, Miscellaneous Items, and Money Retained by Earners							Representing of Income % 70 and over
		Total No.	under 20%	% 20-30	% 30-40	% 40-50	% 50-60	% 60-70	
Under 5 Persons		45	—	2	5	14	14	7	3
5-7 Persons	...	23	—	3	7	6	5	2	—
Over 7 Persons		7	—	2	2	2	—	1	—
Average 4.7 Pers.		75	—	7	14	22	19	10	3

clothing. The unspecified margin includes all savings; thus the data in the second part of Table Xe represent that share of the income not taken up by the items dealt with in Tables Xa, Xb, and Xc. It will be seen that nearly 43 per cent of the 75 families spent on food, rent, and fuel and light, less than half of their income, and over 17 per cent—13 families—less than 40 per cent of it. Of these 13 families, six consisted of three persons, including a child of school age or under. In one of these families the wife also was an earner.¹ Four of the families comprised each four persons; one, however, had no dependent children, one had one such child, and two had two dependent children. In one of the families with two dependent children and in that with one dependent child the housewives worked part-time. The three larger families consisted, one of five persons with one dependent child, another of six persons with two dependent children, and the largest one of nine persons with three dependent children.

PART II: OUTLAY ON FOOD AND NUTRITION

(1) THE TREND OF EXPENDITURE ON FOOD FROM 1945 TO 1946

In order to make possible a comparison of the outlay on and the consumption of food of families of different sizes and different age and sex structures, we have resorted to the expedient of standardizing the families by means of expressing the persons in terms of 'man' values.² If, however, we are comparing for two different periods figures of expenditure relating to the same set of families, and if the composition of these families has remained *unchanged*, standardization is not required, and it is more natural to compare changes in expenditure per person than in expenditure per 'man'.

There were in our sample for June-July, 1946, 59 families that had also supplied household accounts in June-July, 1945, and that had remained *unchanged* in structure. Another 24 families that had kept accounts for both periods had altered in structure, some being larger in 1946 than in 1945 and some smaller. These families are styled *changed* families. Besides, 68 *new* families contributed to our sample in 1946.

The trend of expenditure on food from one period to another can, of course, only be judged by means of a small sample if we are able to compare the outlay of identical families for both periods. In order to ascertain this trend from the summer of 1945 to the summer of 1946, we have considered, in Table XI, the outlay of the *unchanged* families. The families are ranged according to their food expenditure per person per week in June-July,

¹ This family and two others consisting of husband, wife, and one child, with the husband as the sole earner, represented the group of families spending less than 30 per cent of their income on food, housing, and fuel and lighting.

² The two scales of 'man' values employed by us are set out in Table XIX. The *Institute of Statistics Scale* has been used always unless explicit reference is made to the *Ministry of Health Scale*.

TABLE XI *Changes in Food Expenditure since 1945*

Food Expenditure 1946 Per Person per Week		Index of Food Expenditure per Person : 1945=100						Total Fams.
		under 18	85-94	95-104	105-114	115-124	125 and over	
Under 9s.	{ Unch. Fam.	1	2	1	2	—	—	6
	{ Chgd. Fam.	3	1	—	—	—	—	4
9s.—10s.	{ Unch. Fam.	—	2	1	1	2	—	6
	{ Chgd. Fam.	1	—	1	1	1	—	4
10s.—11s.	{ Unch. Fam.	—	—	1	3	2	—	6
	{ Chgd. Fam.	1	1	1	1	2	—	6
11s.—12s.	{ Unch. Fam.	2	4	2	3	—	1	12
	{ Chgd. Fam.	—	—	—	2	—	—	2
12s.—13s.	{ Unch. Fam.	2	3	4	2	1	—	12
	{ Chgd. Fam.	—	—	—	—	1	—	1
13s.—15s.	{ Unch. Fam.	—	—	2	2	1	2	7
	{ Chgd. Fam.	—	—	—	1	—	—	1
15s.—18s.	{ Unch. Fam.	—	1	—	2	2	2	7
	{ Chgd. Fam.	—	—	—	2	1	3	6
18s. and over	{ Unch. Fam.	—	—	—	2	—	1	3
	{ Chgd. Fam.	—	—	—	—	—	—	—
Total	{ Unch. Fam.	5	12	11	17	8	6	59
	{ Chgd. Fam.	5	2	2	7	5	3	24

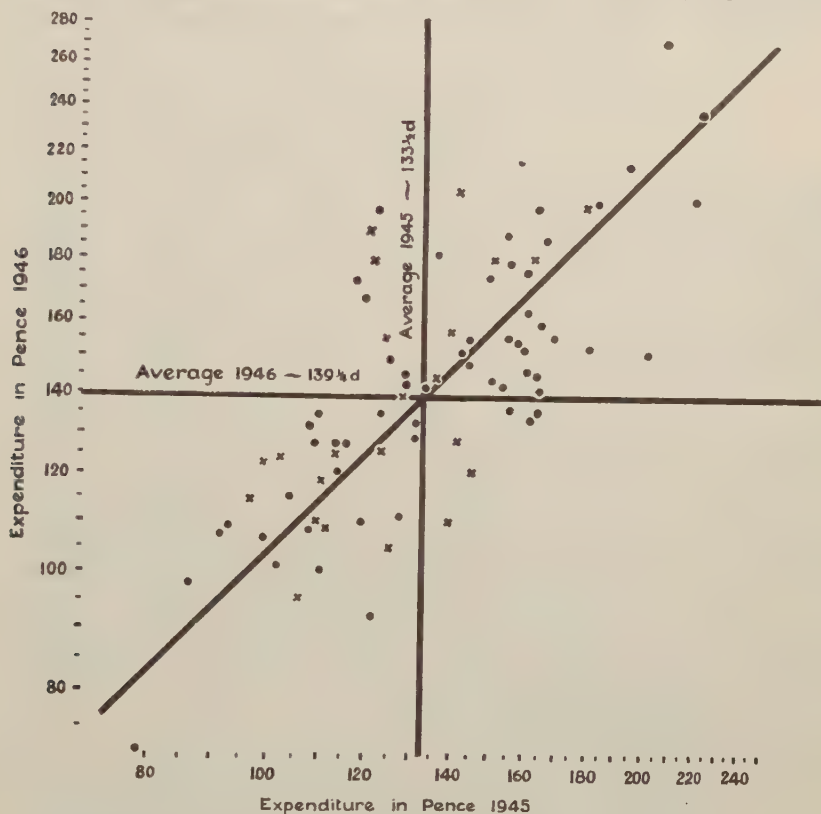
1946, and the indices show whether this expenditure was the same as in June-July, 1945, or whether it was higher or lower. In each instance the outlay on food in 1945 has been equated to 100. It will be seen that of the 59 *unchanged* families, 11 spent about as much per person in 1945 as in 1946, while 17 spent less and 31 more.

Table XI also gives, in *italics*, the corresponding indices for the *changed* families. Of these families two only spent per person per week approximately the same amounts during both sampling periods; seven of the *changed* families spent less on food per person in 1946 than in 1945, and fifteen spent more. It must, however, be realized that for the individual family of this group the 'man' value per person may vary considerably from one year to another. This may be illustrated by two rather extreme examples: the average 'man' value per person of a couple is 0.93. If the wife has twins, the four persons of the family will have an average 'man' value of 0.63. Or, if a family with 2 children under 3 years and one between 3 and 5 years old, is joined by two sons over 14 years old—who during a previous sampling period may have been staying with relations—the average 'man' value of this family is raised from 0.60 to 0.72. Thus, of the 7 families that spent on food over 5 per cent more in 1945 than in 1946, four had a child born to them since our survey in 1945, and the decline in their outlay on food per person does not represent a decline in the standard of living of three of these families. The fourth of these had increased from four persons in 1945 to eight in 1946, three children of school age having returned home in 1946. Since there was no change in the housekeeping money, actually less was

spent by the family on food in 1946 than in 1945, when the outlay on food for husband, wife, and two children 12 and 14 years old, amounted to 18s. 9d. per person per week.

DIAGRAM B

Changes in the Expenditure on Food per Person per Week of 83 Families



(Outlay in pence : 1945 horizontal, 1946 vertical. Logarithmic scales)

The outlay on food per person per week of the 59 *unchanged* and the 24 *changed* families in 1945 and 1946 is pictured in detail in Diagram B. The Diagram has been drawn on a double logarithmic scale ; the *unchanged* families are represented by dots and the *changed* families by crosses. The average rise in the outlay on food per person amounted for the 83 families to approximately 4.3 per cent, and the diagonal divides the Diagram in such a way that the dots and crosses lying on it indicate a rise in food expenditure of the respective families by this percentage. The average rise in expenditure is obviously well defined by the data of expenditure of the individual families, which, on the whole, cluster fairly closely around the diagonal.

(2) THE PATTERN OF FOOD EXPENDITURE

The changes in the outlay on food per person per week are compared in Table XII with the changes in the outlay on food per 'man' per week. Table XII also shows the weekly outlay, per person and per 'man', of the total housekeeping money and, further, the relative outlay on the several food groups.

TABLE XII
Relative Expenditure on Food Groups

	Unch. Families (59)		Changed Fams. (24)		New (68) Fams.	All (151) Fams.
	1945	1946	1945	1946	1946	1946
Bread and Cereals ¹ ...	15.8	15.9	17.4	16.6	15.6	15.9
Fats ² ...	0.7	0.6	0.6	0.7	0.7	0.6
Meat and Meat Products ³ ...	19.0	17.8	19.7	17.8	19.1	18.4
Fish ⁴ ...	5.3	4.9	5.1	5.5	4.3	4.8
Dairy Produce ⁵ ...	20.2	18.3	20.8	19.1	18.1	18.4
Groceries ⁶ ...	8.0	8.1	7.4	8.9	8.3	8.3
Potatoes ...	5.4	6.0	6.1	6.4	5.6	5.9
Other Vegetables and Fruit ⁷ ...	12.1	13.6	11.9	11.0	14.5	13.5
Other Foods ⁸ ...	13.5	14.8	11.0	14.0	13.8	14.2
Total ...	100.0	100.0	100.0	100.0	100.0	100.0

Weekly Expenditure on Food and Total Expenditure

Food Expenditure :													
per Person ...	11	2½	11	10½	10	11	11	0½	11	5½	11	6½	
per 'Man' ...	14	7½	14	11½	14	0	14	2½	15	4½	15	0½	
Total Expenditure :													
per Person ...	24	9½	25	3	20	10½	20	10½	22	4½	23	1½	
per 'Man' ...	32	3½	31	9½	26	9½	26	10½	30	0½	30	1½	

¹ Including flour, cake, biscuits, breakfast cereals, oatmeal and rolled oats, rice, semolina, etc.

² Cooking fat, lard, suet, dripping.

³ Butcher's meat, bacon, cooked, tinned, and potted meat, offals, sausages, meat pies, fowls, and rabbits.

⁴ Wet, cured, bottled, fried, tinned.

⁵ Butter, margarine, milk, cheese, eggs (in shell and dried).

⁶ Sugar, tea, cocoa, jam, syrup, honey.

⁷ Including dried legumes, tinned vegetables, and dried fruit.

⁸ Including all meals bought away from home, condiments, fancy foods, and sweets.

The relative rise in the outlay on food, from 1945 to 1946, of the *changed* families, was approximately the same per 'man' as per person—a little over 1 per cent—since the 'man' value per person of these families was the same in both years. The 'man' value per person of the *unchanged* families, however, had risen by about 2½ per cent, and the increase in the food expenditure per 'man' was proportionately lower than the increase in the food expenditure per person, the former amounting to 2.3 per cent and the latter to 5.9 per cent.¹

The figures of relative outlay in Table XII show that the outlay on food was distributed broadly in the same way during both sampling periods. A slight decline could be observed in particular in the relative outlay on meat

¹ The structure of the three groups of families is set out in detail in Part I, Table III.

products and also on dairy produce, the former being mainly due to reduced purchases of cooked meat and the latter to reduced purchases of dried eggs. Slight increases occurred in the outlay on vegetables and fruit, on meals bought away from home, and on fancy foods. The average outlay on potatoes was a little higher in 1946 than in 1945, owing to a somewhat larger consumption of new potatoes during our sampling period in 1946, as compared with that in 1945. New potatoes were generally on sale earlier in 1946 than in 1945, since in 1946, stocks of old potatoes were exhausted earlier.

(3) CONSUMPTION IN 1945 AND 1946

(a) *Specifically Rationed Foods and Milk*

The consumption of the main rationed foods is surveyed in Table XIII. Bread, flour, and flour confectionery, were still unrationed during our sampling period in 1946, and hence are not included. Purchases of unrationed fats, however, are shown, since they represent a much prized supplement to the allowance of rationed fats.

The weekly amounts of the specifically rationed foods available per ordinary ration book were, in June and July, 1946: meat, 1s. 2d. worth; bacon, 3 ounces; butter or margarine, 3 ounces¹; margarine, 3 ounces; cooking fat, 1 ounce; tea, 2½ ounces²; sugar, 8 ounces; jam or sugar, 4 ounces; cheese, 2 ounces. In June and July 1945, the allowances were the same for most of these foods, but the maximum butter ration amounted to only 2 ounces and the supplementary ration of margarine was, therefore, always 4 ounces. The tea ration was only 2 ounces per ordinary ration book per week. During both periods the meat ration of children in receipt of Government milk—supplied to children up to the age of five years—was half the adult ration, and these children had no allowance of tea. The weekly amount of fresh milk that could be obtained by an adult varied in general between 3 and 3½ pints, although some people were able to purchase considerably more. A child up to the age of 5 years was entitled to 7 pints per week at 2d. a pint,³ and children and juveniles under 17 years old were allowed 3½ pints per week, at the ordinary price of between 4½d. and 5d. a pint.

During our sampling periods in both 1945 and 1946, a family could buy additional sugar issued for making fruit preserves; this partly accounts for the relatively large purchases of sugar shown in Table XIII. Moreover, our figures for jam also include the purchases of tinned jam and marmalade,⁴ rationed on 'points'. It was not possible for us to distinguish between these and the specifically rationed preserves. There was in neither year a guaranteed ration of eggs, but about one egg per ordinary ration book per week was available to most people during our sampling periods in 1945 and 1946. Our figures of consumption of eggs in Table XIII refer to eggs purchased and to eggs from own hens, the latter amounting, per person per week, for the *unchanged*

¹ On the average: 2 ounces one week and 4 ounces the next week.

² On the average: 8 ounces for one four-weekly period and 12 ounces for the next period.

³ Free, if the family was poor.

⁴ Tinned jam was obtainable on 'points' only in 1946, but tinned marmalade was 'points' rationed in June and July of 1945 and 1946.

TABLE XIII

Weekly Consumption of Foods for Ordinary Ration Book and Children's Consumption of Milk

	Unchanged Fams.		Changed Families		New Families (68)
	(59)		(24)		
	1945	1946	1945	1946	1946
Meat ¹	17½d.	17½d.	17½d.	16½d.	17½d.
Bacon	2.9 oz.	2.9 oz.	2.7 oz.	2.9 oz.	2.9 oz.
Tot. Rat. Fats ²	7.1 oz.	7.0 oz.	6.8 oz.	7.0 oz.	7.0 oz.
Butter only	2.0 oz.	2.8 oz.	2.0 oz.	2.6 oz.	2.8 oz.
Unrat. Fats ³	0.3 oz.	0.3 oz.	0.3 oz.	0.4 oz.	0.4 oz.
Tea	2.0 oz.	2.2 oz.	1.8 oz.	2.5 oz.	2.6 oz.
Sugar	9.8 oz.	10.4 oz.	9.4 oz.	11.5 oz.	9.8 oz.
Jam ⁴	4.3 oz.	4.3 oz.	3.9 oz.	3.6 oz.	3.6 oz.
Cheese	1.8 oz. ⁵	2.0 oz.	2.0 oz.	2.0 oz. ⁷	2.0 oz. ⁸
Eggs, shell ⁹	1.8 eggs	1.5 eggs	2.1 eggs	1.7 eggs	1.0 eggs
<i>Foods Rationed on 'Points':</i>					
Eggs, dried ¹⁰	1.3 eggs	0.6 eggs	1.1 eggs	0.5 eggs	0.7 eggs
Cooked Meat ¹¹	0.9 oz.	0.4 oz.	1.1 oz.	0.3 oz.	0.5 oz.
Tinned Meat ¹²	½d.	½d.	—	½d.	1d.
Tinned Fish	1d.	1d.	1d.	1½d.	½d.
Tinned Peas and Beans	½d.	1d.	1d.	1d.	1d.
Cereals ¹³	1.3 oz.	2.1 oz.	1.3 oz.	1.5 oz.	1.4 oz.
Dried Legumes ¹⁴	0.3 oz.	0.5 oz.	0.6 oz.	0.9 oz.	0.1 oz.
Dried Fruit	2.1 oz.	1.6 oz.	1.9 oz.	1.2 oz.	1.2 oz.
Syrup and Treacle	1.0 oz.	0.8 oz.	0.6 oz.	0.7 oz.	1.3 oz.
<i>Milk Consumption per Person</i>					
Milk, total ¹⁵	4.7 pt.	4.6 pt.	4.7 pt.	4.6 pt.	4.6 pt.
<i>Of this:</i>					
Ordinary	2.9 pt.	2.9 pt.	3.1 pt.	2.8 pt.	2.5 pt.
Government	1.1 pt.	1.0 pt.	1.0 pt.	1.1 pt.	1.3 pt.
School	0.6 pt.	0.6 pt.	0.5 pt.	0.6 pt.	0.7 pt.
Tinned and Household ¹⁶	0.1 pt.	0.1 pt.	0.1 pt.	0.1 pt.	0.1 pt.
<i>Actual Consumption of School and Government Milk</i>					
	Per Child per Week				
Under 6 years ¹⁷	6.9 pt.	7.0 pt.	7.0 pt.	6.7 pt.	7.0 pt.
Over 14 years ¹⁸	2.3 pt.	2.2 pt.	1.7 pt.	2.6 pt.	2.1 pt.

¹ Including offals, but excluding cooked and tinned meat products, and sausages.² Butter, margarine, lard, and cooking fat.³ Suet and dripping.⁴ Including honey, and jam and marmalade rationed on 'points'⁵ Excluding 9 special rations.⁶ Excluding 5 special rations.⁷ Excluding 1 special ration.⁸ Excluding 3 special rations.⁹ The figures refer to consumption per person. No correction has been made for special allowances for infants under 2 years old, and expectant mothers. The following amounts of eggs from own hens are included: *Unchanged* families, 1945—0.5; 1946—0.5; *changed* families, 1945—1.1; 1946—0.9; *new* families, 1946—0.1.¹⁰ One packet of dried eggs equivalent to 12 eggs in shell.¹¹ Including small quantities of unrationed cooked meat.¹² This group overlaps the preceding one. It also includes tinned mixtures of meat and vegetables.¹³ Excluding rolled oats, but including small quantities of unrationed macaroni and semolina.¹⁴ Beans and peas.¹⁵ The figures in this section show the total quantities per week divided by the total number of persons, for each group.¹⁶ Rationed on 'points'. The combined figures for tinned and Household milk are given in terms of fresh milk.¹⁷ Excluding children between 5 and 6 years old who attend school.¹⁸ Including the children that were excluded from the preceding group, and also those children over 14 years old who obtained milk at school.

families to about half an egg, and for the *changed* families to about one egg, in both years.

The consumption of milk is given in Table XIII per person per week. The data have been computed by adding together the quantities of all the milk obtained per week and dividing this figure by the total number of persons. Below these data of consumption for all milk taken together, as well as for the several groups of milk, per person per week, we have set out the data of special milk allowances per child entitled to this milk, *viz.*, the total weekly consumption of Government¹ milk allotted to the children of our sample, divided by the total number of children up to the age of 5 years, and the total consumption of school milk, divided by the total number of children at school. It will be seen that virtually all the families entitled to Government milk for their children took up their allowance,² and that the children at school consumed there on the average between 2 and 2½ pints weekly, in 1946.³

In general, the figures in Table XIII indicate that the families of our sample purchased all their rations, although a few of them replaced part of the butter ration by margarine. The figure of weekly average consumption of tea in 1946, of the *unchanged* families, was only 2.2 ounces instead of the possible 8-weekly average of 2.5 ounces; but the household accounts of the majority of these families were compiled during a period when the allowance was only 2 ounces per ordinary ration book per week.

(b) *Foods Rationed on 'Points'*

The number of 'points' available for the purchase of certain foods was 5 per person per week in June and July, 1945, and 6 in June and July, 1946. However, our figures in Tables XIII and XIV referring to these foods indicate no general rise in consumption from the earlier to the later period. Indeed, the consumption of some of the foods rationed on 'points' declined, since of several of these foods the 'points' value was higher in June and July, 1946, than it had been during the corresponding period in 1945, while dried eggs, which then belonged to the specifically rationed foods, were sold in the summer of 1946 on 'points', at 8 'points' a packet, equivalent to 12 eggs in shell.

Table XIV also shows the consumption of cocoa and of wet, cured, and dried fish, which foods are unrationed. All the other foods enumerated in Table XIV were rationed on 'points' in 1946. For all the foods we have calculated the consumption per family buying the particular food and also the average consumption of all families, *i.e.*, the total quantities consumed or amounts spent per week, divided by *all* the families of the group, irrespective of whether or not they actually purchased this food. The proportions of families buying the several foods as well as the average quantities bought,

¹ By 'Government' milk we understand the milk sold at 2d. per pint—or supplied free—for children up to the age of 5 years and expectant mothers, and by 'school' milk the milk issued at school at ½d. for a third of a pint, or free.

² One of the *changed* families stated that they never applied for this milk.

³ Consumption of milk is discussed more fully in the *Appendix*.

TABLE XIV
Distribution Pattern of Purchases of Certain Foods

	No of Purchasing Fams. as % of Group					Unit	Purchasing Fams. Consumption per Family per Week					All Fams. Consumption per Family per Week				
	Unchanged 59 Families		Changed 24 Families		New 68 Fams.		Unchanged 59 Families		Changed 24 Families		New 68 Fams.	Unchanged 59 Families		Changed 24 Families		New 68 Fams.
	1945	1946	1945	1946			1945	1946	1945	1946		1945	1946	1945	1946	
Fish	88	92	67	79	84	oz.	31.0	32.0	45.1	46.4	31.0	27.3	29.3	30.1	36.8	26.0
Fish, tinned	46	51	42	54	46	d.	9½	8½	13½	14	8½	4½	4½	5½	7½	4
Meat, cooked	51	32	71	33	28	oz.	7.6	5.9	8.0	4.1	9.4	3.9	1.9	5.7	1.4	2.6
Meat, tinned¹	19	20	—	25	28	d.	15½	12½	—	12½	17	3	2½	—	3½	4½
Eggs, dried²	51	32	54	33	37	egg⁴	11.4	8.8	10.2	8.3	8.9	5.8	2.9	5.5	2.8	3.3
Milk, tinned	20	22	25	42	25	tin	1.1	1.0	0.8	0.9	1.0	0.2	0.2	0.2	0.4	0.2
Milk, Household³	10	8	8	8	7	pt.⁴	2.3	2.4	2.0	2.0	3.2	0.2	0.2	0.2	0.2	0.2
Dried Legumes	10	15	17	25	6	oz.	14.7	13.3	17.0	17.3	12.0	1.5	2.0	2.8	4.3	0.7
Rolled Oats	24	15	17	17	21	oz.	32.0	23.1	18.0	14.0	22.3	7.6	3.5	3.0	2.3	4.6
Biscuits	75	68	71	75	75	oz.	11.7	11.4	16.9	14.8	13.0	8.8	7.7	12.0	11.1	9.7
Cocoa	27	29	29	29	31	oz.	5.1	5.7	5.7	4.0	5.0	1.4	1.6	1.7	1.2	1.5
Dried Fruit	58	49	54	67	53	oz.	16.1	14.6	17.9	9.5	11.4	9.3	7.2	9.7	6.3	6.1
Syrup and Treacle	22	29	21	29	41	oz.	19.1	12.2	14.4	13.7	15.1	4.2	3.5	3.0	4.0	6.2

¹ No quantities stated. ² One packet equals 12 eggs in shell.

³ One tin equals 4 pints of skimmed fresh milk.

⁴ Equivalent.

indicate a definite pattern of preferences. This pattern is, of course, not a rigid one, and it can be modified by changes in the relative 'points' values of the individual foods. This may affect even the purchases of unrationed foods. Thus, the increase in the proportions of families that bought unrationed fish in 1946, as compared with the corresponding figures for 1945, suggests that fish acted partly as a substitute for cooked meat, which was dear in terms of 'points'. Dried eggs were bought in 1945 by about half the families that supplied accounts to us for both years, but only by about a third of them in 1946. In 1945, one packet was available per ordinary ration book about every four weeks, while in 1946, dried eggs had to be bought on 'points,' so that a housewife had to decide whether she preferred dried eggs to other foods similarly rationed.

(c) *The Main Unrationed Foods*

Our survey in 1946 was undertaken before the introduction of the rationing of bread, flour, and flour confectionery. A few families in fact supplied accounts after the rationing of bread and flour had started, but their consumption of these foods was probably unaffected by it, since during the initial stage this rationing was not applied very strictly. The weekly consumption, per person and per 'man', of these foods and of potatoes, fish, and sausages, and further, the weekly outlay per person and per 'man' on fresh fruit and vegetables (excluding potatoes), are considered in Table XV. We have there also included the figures of average consumption of rolled oats,¹ which were rationed on 'points', since in some families porridge represents an important partial substitute for bread at breakfast.

The average total consumption of the five main carbohydrate foods—bread, flour, flour confectionery, potatoes, and rolled oats—had increased for the *unchanged* families, while for the *changed* families it had slightly fallen. The average amount of calories obtained from these foods was, however, approximately the same in 1946 for the *unchanged*, the *changed*, and the *new* families,² and we have no reason to assume that the purchases of flour in 1946 of the *unchanged* families included considerable quantities bought for stock.

There was apparently more soft fruit available during our sampling period in 1946, as compared with that in 1945, and the increase in outlay on fresh vegetables and fruit of the *unchanged* families seemed to be due to this.

(d) *Meals Away from Home*

The average numbers of luncheons and dinners eaten by adults and children away from home are considered in Table XVI. The numbers of meals for adults have been calculated per earner, a housewife working part-time being counted as half an earner, and the numbers of meals for children,

¹ None of the families of our sample bought oatmeal.

² The calorific intake per 'man' per week from foods in Table XV was as follows (Ministry of Health Scale):

Foods in Table XV.	Nos.	Unchanged Families		Changed Families		New Families
		1945	1946	1945	1946	1946
(1) to (6) ...	...	9,960	10,680	10,960	10,570	10,620
(7) & (8) ...	...	370	390	370	390	380

TABLE XV

Weekly Consumption of the Main Carbohydrate Foods and of Fish, Sausages, and Fresh Fruit and Vegetables

		59 Unchanged Families				24 Changed Families				68 New Fams	
		per Person		per 'Man'		per Person		per 'Man'		per Person	per 'Man'
		1945	1946	1945	1946	1945	1946	1945	1946	1946	1946
		oz.	oz.	oz.	oz.	oz.	oz.	oz.	oz.	oz.	oz.
(1) Bread ...	...	64.2	70.2	83.6	88.3	75.4	72.3	96.7	93.2	71.5	96.0
(2) Flour ...	...	7.3	10.9	9.5	13.7	7.0	5.8	9.0	7.5	5.2	7.0
(3) Cake, Buns, Biscuits ...	...	10.9	9.1	14.2	11.4	10.0	9.5	12.8	12.3	7.6	10.2
(4) Potatoes, old ...	...	13.1	15.2	17.0	19.1	27.9	14.0	35.8	18.0	19.6	26.4
(5) Potatoes, new ...	...	35.3	46.5	45.9	58.6	34.6	44.8	44.4	57.8	42.4	57.0
(6) Rolled Oats ...	...	1.7	0.8	2.2	1.0	0.6	0.4	0.8	0.6	0.9	1.3
(7) Fish ...	...	6.2	6.6	8.0	8.3	5.9	6.7	7.5	8.7	5.3	7.1
(8) Sausages ...	...	3.5	3.9	4.5	4.9	3.9	3.6	5.0	4.6	4.0	5.4
<i>Outlay on Fresh Veg. and Fruit (excl. potatoes)</i>		<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>
		14½	17	18½	27½	13	12½	17	16	17½	24½

TABLE XVI

Luncheons and Dinners Away from Home

Group of Families			No. of Meals per Week per Child at School bought			Av. Price per Meal Bought	
			Per Adult at Work	per Child at School bought	free	Adult d	Child d.
Unchanged							
1945	...	...	1.45	1.22	0.33	14	4½
1946	...	...	1.84	2.20	0.38	14½	5
Changed							
1945	...	...	1.72	0.64	0.38	12½	5
1946	...	...	1.53	1.25	0.31	14½	5
New							
1946	...	...	1.19	1.91	0.19	15½	3½

TABLE XVII

Expenditure on Rationed and Unrationed Foods

	per ' Man '		per Week			
	59 Unch. Fams.		24 Changed Fams.		68 New Fams.	Human Needs* Nov. 1946
	1945	1946	1945	1946	1946	
(1) Specifically Rationed Foods ¹ ...	4 4	4 3½	4 1½	4 2½	4 5½	{ 4 9
(2) ' Points ' Rat. Foods (excl. milk) ² ...	1 1½	0 11	1 0½	0 10½	1 0	
(3) Tinned and Househ. milk ³ ...	0 0½	0 0½	0 0½	0 0½	0 0½	
(4) All Fresh Milk ⁴ ...	1 8½	1 8	1 9½	1 8½	1 8	
(5) Bread and Flour ...	1 2	1 5½	1 4	1 4½	1 5½	1 5½
(6) Cake and Buns ...	0 9½	0 7½	0 9½	0 8½	0 7	—
(7) Potatoes ...	0 9½	0 10½	0 10½	0 11	0 10½	0 5½
(8) Fresh Vegetables and Fruit ...	1 6½	1 9½	1 5	1 4	2 0	0 10½
(9) Sundries ⁵ ...	3 0½	3 3½	2 7	3 0½	3 2½	1 1½
Total ...	14 7½	14 11½	14 0	14 2½	15 4½	10 2½

¹ Including meat offals, and tinned jam and marmalade rationed on 'points'.

² Including macaroni and semolina.

³ Rationed on 'points'.

⁴ Including Government milk and children's milk at school.

⁵ Including wet fish, kippers, and fried fish, sausages, cocoa, unrationed fats, fancy foods and condiments, and meals bought away from home.

⁶ Cf. BULLETIN, Vol. 8, No. 12.

per child attending school. The figures of average consumption of school meals indicate a decidedly upward trend from 1945 to 1946. For the children of the *unchanged* families, the average numbers of school meals consumed increased by 63 per cent, nearly half of all the children at school of these families having their mid-day meal there on five days a week. Of the children of the *changed* families, 27 per cent more had a main meal at school in 1946 than in 1945, 31 per cent of all the children at school of this group partaking regularly of school meals in 1946. For the children of the *new* families this proportion amounted to 41 per cent.

Nearly every third of the earners of the *unchanged* families had one main meal out on 6 days a week in 1946, nearly every fourth earner of the *changed* families, and nearly every fifth of the *new* families. The average prices paid for meals for adults in 1946 varied from 1s. 2d. to 1s. 3½d., and the average prices paid for children's meals from 3¼d. to 5d.

(4) THE OUTLAY ON RATIONED AND UNRATIONED FOODS

The outlay on the several groups of rationed and unrationed foods per 'man' per week is given in Table XVII, and is there compared with the outlay on the corresponding groups of a 'human needs' diet, compiled by us for a family consisting of husband, wife, and three children of school age, for November 1946.¹ The average expenditure of the *new* families on all the rationed foods amounted to approximately 10d. per 'man' per week more than that computed by us for the 'human needs' diet. With respect to the *unchanged* families, however, the difference was only about 6d., and with respect to the *changed* families, 5d. These differences are mainly accounted for, first, by the higher prices paid for bacon by the 151 families of our sample, as compared with the price allowed in the 'human needs' diet,² secondly, by the purchases of butter by these families instead of margarine, substituted for butter, in the 'human needs' diet, and, thirdly, by the inclusion of some unrationed meat offals in the figures of outlay on rationed foods, in the case of the families of our sample. The outlay on milk in the 'human needs' diet excludes expenditure on school milk, which in November 1946, was free for all children. Had this milk been paid for at the rate of 1½d. per pint, the outlay on milk per 'man' in the 'human needs' diet would have risen to 1s. 8½d.—approximately as much as was spent on the average on this item by the families that supplied the household accounts. No purchases of cakes and buns were allowed for in our 'human needs' diet.

The main differences between the outlay on foods of the families that supplied the household accounts and the outlay calculated for a human needs diet appear for the groups of fresh vegetables and fruit, and of 'sundries', *i.e.*, the groups that include the unrationed semi-luxury foods, as distinct from such a basic unrationed food as potatoes, the price of which was controlled in November 1946, at about a penny a pound. Bread, flour, cake, and buns were rationed in November 1946, but not in June and July of that year.

¹ With a total 'man' value of 3.75. Cf. BULLETIN, Vol. 8, No. 12.

² 2s. 1½d. per lb. as against 1s. 9d. per lb.

(5) NUTRITIONAL INTAKE

The average nutritional intake of the families of our sample is given in Table XVIII. It has been compiled by means of two different scales. The

TABLE XVIII. *Nutritional Intake per Man per Day*

	Institute Scale (Gross Values)			Ministry of Health Scale (Net Values)		
	Calories	Protein total	(grammes) <i>animal</i> 50 ¹	Calories	Protein total	(grammes) <i>animal</i> — ²
<i>Average Requirements :</i>	3,300	100		3,000	70	
<i>Intake :</i>						
Unch. Fams. { 1945	3,350	108	54	3,100	85	41
{ 1946	3,600	116	52	3,350	94	40
Chgd. Fams. { 1945	3,300	109	52	3,000	83	38
{ 1946	3,550	114	51	3,250	89	39
New Fams. ... 1946	3,650	117	54	3,400	94	41

¹ Pre-war B.M.A. standard.² Not given.

original scale, termed in this paper 'Institute of Statistics Scale', measures primarily the calorific requirements of individuals. We have also applied it for assessing the relative share in the total household expenditure needed for the several members of the family, on food as well as on non-food items, and it has been used for this purpose throughout this paper.

In the summer of 1943, the Ministry of Health supplied us with improved data of nutritional requirements of the different age and sex groups, and we have employed these ever since in our calculations of nutritional intake, side by side with our own scale, under the title of 'Ministry of Health Scale'. Our own scale has retained its usefulness mainly as a means of standardizing the families so as to be able to compare data of household expenditure of different families, since the Ministry of Health scale could not easily be adapted for this purpose. We have also continued to calculate for our samples every year the average calorific intake and the average intake of protein on the basis of the Institute of Statistics scale, so as to make possible an easy comparison of these data in our earlier papers with those in the later ones. The two scales of 'man' values are shown in Table XIX.

TABLE XIX
Scales of 'Men' Values

Institute of Statistics Scale		Ministry of Health Scale		
<i>Adults and Juveniles :</i>		Age Groups	Calories	Proteins
		21+, male	1.00	1.00
Male, 14+	1.00	21+, female	0.83	0.86
Female, 14+	0.85	17—21	1.00	1.29
<i>Children :</i>		15—17	1.00	1.43
		12—15	0.97	1.36
	10—14			
		7—12	0.70	0.93
	6—9			
		3—7	0.50	0.71
	3—5			
		1—3	0.37	0.60
	Under 3			
		6—12 months	0.27	0.33
		0—6 months	0.20	0.26

Not only are the basic standards different in the Institute of Statistics scale and the Ministry of Health scale, but so also are the tables of nutritional values of foods used in conjunction with each of them. Much research in the composition of foods has been carried out in recent years, and the tables of food values supplied to us by the Ministry of Health in 1943 have already been superseded, in 1945, by a new set of tables published by the Medical Research Council. Since, however, it is intended to conclude this present series of surveys in 1947, it seemed better to avoid introducing another set of figures, in particular as the average figures of nutritional intake derived from the latest data would not substantially differ from those obtained by means of the earlier Ministry of Health data. On the other hand, the difference between the data of nutritional values used with the Institute of Statistics Scale, and those used with the Ministry of Health Scale, is considerable, for the former refer to *gross* values, *i.e.*, nutrients as bought, and the latter to *net* values, *i.e.*, nutrients as consumed. It will be seen from the data in Table XVIII that the average requirements for calories and protein are given considerably higher for the Institute of Statistics Scale than for the Ministry of Health Scale.

The average calorific intake of the *unchanged* as well as of the *changed* families was higher in 1946 than it had been in 1945, and the figures of intake of the *new* families were well in keeping with the figures relating to the two other groups of families, for 1946. Since under the present conditions of rationing of fats and sugar a noticeable increase in the calorific intake can in general be attained only through an increased consumption of starchy foods, whose calorific content is partly represented by second class protein, a rise in calorific intake implies a rise in the intake of protein. We thus find for the *unchanged* as well as for the *changed* families higher figures of calorific intake in 1946 than in 1945 accompanied by higher figures of protein intake. No perceptible rise is indicated in the corresponding figures of animal protein. Moreover, the figures of calorific intake and of the intake of second class protein only suggest a return to the nutritional level of our sample families in 1944, after a slight decline in nutritional intake in 1945.

CONCLUSION

Three main conclusions seem to emerge from this survey. First, no deterioration of income appears to have been experienced by the families of our sample, although one might have expected a decline of overtime from June-July 1945, to June-July, 1946, and, in consequence, reduced earnings. Secondly, there was no apparent change in total household expenditure since our last sampling period, but a slight increase was indicated in the outlay on food and also on fuel and lighting, the latter mainly due to an increased consumption of gas and, possibly, electricity. Purchases of coal, too, were somewhat higher in 1946 than in 1945. Thirdly, the total expenditure on food housing, and fuel and light, seems to have absorbed on the average only about 50 per cent of the income, the remaining half of which was thus available for

expenditure on clothing and miscellaneous household requirements, the owners' personal expenditure, and savings.

A comparison between the purchases of foods of the families of our sample in June-July 1945, and June-July 1946, shows that there were no important changes in the consumption of the main foods. Differences were apparent mainly as regards the purchases of foods rationed on 'points', and a distinct decline could be observed in particular in the purchases of dried eggs and of cooked meat. The outlay on fresh vegetables, fresh fruit, and on fancy foods, was higher during our sampling period in 1946 than during that in 1945, and the consumption of school meals appeared to have risen sharply. The calorific intake and, in conjunction with it, the intake of second class protein, was above that in 1945 and corresponded approximately to the average intake obtained for our sample in 1944, but there was no change in the average intake of first-class protein from 1945 to 1946.

T. SCHULZ.

APPENDIX: CONSUMPTION OF MILK

The figures of average consumption of milk in Table XIII are about the same for both our sampling periods in 1945 and 1946. In 1946, 4.6 pints of milk—including Government milk and School milk—were obtained per person per week by the *unchanged*, the *changed*, and the *new* families. Of this total, however, the Government milk—supplied to children up to the age of 5 years and to expectant mothers—and the milk obtained by the children at school, represented, per person per week, 1.6 pints in the case of the *unchanged* families, 1.7 pints in the case of the *changed* families, and 2 pints in that of the *new* families. The *new* families thus consumed per person per week about half a pint of ordinary fresh milk less than the *unchanged* families in 1946. Nevertheless, since at least $2\frac{1}{2}$ pints of ordinary milk was obtained per person *including* the children who also were in receipt of Government milk, as well as those in receipt of school milk, the figures of average consumption of milk were satisfactory for all the three groups of families.

Yet the quantities of milk purchased by individual families varied widely. Milk is a quasi-rationed food, but it is also a highly perishable one, and cows are not machines with a standardized output capacity. Thus, although families that obtain their milk from a large combine with facilities for utilizing any temporary surplus of milk, may never receive more than their minimum ration—in June and July of 1945 and 1946, 3 pints per adult per week, and $3\frac{1}{2}$ per child of school age—others that are supplied by small dairy farmers, can sometimes buy considerably more than this. It is therefore of interest to analyse the consumption of milk in some detail.

Table 1a, 1b, and 1c, show the consumption of milk of the 151 families of our sample in 1946, in relation to their expenditure per 'man' per week on food. Table 1a is concerned with the 74 families that had no young children

TABLE 1a
74 Families with No Children under 6 Years OldDomestic Consumption of Fresh Milk per Person per Week (Figures in columns : Heavy type, total no. of families ; below : average nos. per family of persons over 14 ; children 6—14¹)

Food per 'Man' per Week	under 2 pints	2 pints +	3 pints +	4 pints +	5 pints +	6 pints and over
Under 10s.	—	—	—	2 3.0 ; 1.0	—	—
10s. +	1 4.0 ; 4.0	1 2.0 ; 7.0	—	1 2.0 ; 1.0	—	—
11s. +	—	2 4.0 ; 2.0	1 2.0 ; 5.0	—	—	—
12s. +	—	3 2.7 ; 1.3	5 3.6 ; 2.2	3 3.3 ; 1.7	—	—
13s. +	—	3 3.3 ; 1.3	5 3.0 ; 1.8	5 2.6 ; 1.0	—	—
14s. +	—	—	7 2.3 ; 1.3	1 4.0 ; 1.0	—	—
15s. +	—	—	2 2.0 ; 1.5	—	—	—
16s. +	1 2.0 ; 2.0	2 3.0 ; 2.0	4 2.5 ; 1.3	1 3.0 ; 1.0	1 4.0 ; —	—
17s. +	—	2 2.0 ; 1.0	2 2.5 ; 1.0	1 2.0 ; 1.0	2 3.0 ; 1.0	—
18s. +	—	2 4.0 ; 0.5	1 2.0 ; —	3 3.0 ; 0.7	1 2.0 ; 2.0	—
19s. and over	1 6.0 ; 3.0	2 3.0 ; —	2 2.5 ; 2.0	—	3 2.0 ; 1.0	1 2.0 ; 1.0
	3 4.0 ; 3.0	17 3.1 ; 1.5	29 2.6 ; 1.7	17 2.8 ; 1.1	7 2.6 ; 1.0	1 2.0 ; 1.0

¹ Including children at school over 14 years old.

in receipt of Government milk, while the 77 families having children in this age group are dealt with in Tables 1b and 1c. In all these three Tables, the figures in heavy print indicate the numbers of families in the respective range of food expenditure and milk consumption, while below these figures are set out the relevant data of average structure of the families. In Table 1a the families have thus been split up into persons over 14 years old and children of school age.¹ The figures of average structure of the families in Table 1a indicate only for 4 of the 74 families a consumption of milk less than 2½ pints per week per adult and 3½ pints per child at school. Two of these four families spent on food per 'man' per week between 10s. and 11s., one family spent between 16s. and 17s., and one spent over 19s.

The picture supplied by Table 1b is less satisfactory. The figures in small print in this Table give, per family, the numbers of persons over 14 years old, the numbers of children of school age, and the numbers of children under school age. In calculating the domestic consumption per person these latter children have been omitted, since they all had an allowance of Government

¹ Actually, all juveniles up to the age of 16 years old are entitled to 3½ pints of milk per week. But it is sometimes impossible to persuade a young person to consume much milk, especially if he has left school and has perhaps six main meals per week at his works ; 2½ to 3 pints per week may be all that is required for his tea. We have therefore only included those children over 14 years old who were still at school.

TABLE 1b
77 Families with Children under 6 Years Old

Domestic Consumption of Fresh Milk *excluding* Government Milk and Children receiving it, per Person per Week (Figures in columns: Heavy type, total no. of families; below: average nos. per family of persons over 14; children 6—14¹; children under 6)

Food per 'Man' per Week	no ordinary fresh milk	under 2 pints	2 pints +	3 pints +	4 pints +	5 pints +	6 pints and over
Under 10s.	—	—	—	1 2.0; 3.0; 1.0	—	—	—
10s. +	—	3 3.0; 3.7; 2.0	3 2.7; 3.0; 1.7	1 4.0; 1.0; 1.0	—	—	—
11s. +	—	2 2.0; 1.5; 1.5	2 4.0; 3.0; 2.0	1 4.0; 2.0; 1.0	—	—	—
12s. +	1 2.0; —; 2.0	1 3.0; 2.0; 1.0	—	3 2.0; 0.7; 2.0	—	—	—
13s. +	—	2 3.0; 2.0; 1.0	5 2.0; 2.6; 1.6	3 2.3; 3.3; 1.3	1 2.0; 2.0; 1.0	—	—
14s. +	1 2.0; 1.0; 2.0	2 2.5; 2.0; 1.5	4 2.5; 1.3; 1.0	1 2.0; 1.0; 1.0	—	—	—
15s. +	—	—	1 2.0; 1.0; 1.0	2 1.5; 0.5; 1.5	3 2.0; 1.7; 1.7	—	1 2.0; —; 2.0
16s. +	—	—	1 2.0; 1.0; 1.0	4 2.8; 0.8; 1.3	—	1 2.0; 1.0; 1.0	—
17s. +	1 3.0; 1.0; 3.0	1 3.0; 2.0; 2.0	2 2.0; 2.0; 2.0	1 2.0; —; 1.0	2 2.0; 1.0; 1.5	1 2.0; —; 2.0	1 2.0; 1.0; 2.0
18s. +	—	—	1 7.0; —; 1.0	—	—	—	2 2.0; —; 2.0
19s. and over	—	—	1 4.0; —; 1.0	3 2.0; 0.7; 1.0	4 2.0; 0.8; 1.5	4 2.0; 0.8; 1.3	3 1.7; 0.3; 1.3
	3 2.3; 0.7; 2.3	11 2.7; 2.4; 1.5	20 2.8; 2.0; 1.5	20 2.4; 1.3; 1.3	10 2.0; 1.2; 1.5	6 2.0; 0.7; 1.3	7 1.9; 0.3; 1.7

¹ Including children at school over 14 years old.

² 2s. 6d. was spent per week on Ostermilk by one family in this group.

milk of one pint a day. The consumption of milk of all the 14 families that purchased less than between 2 and 3 pints per person per week was substantially below their minimum allowance, as was also the consumption of 10 out of the 20 families that bought between 2 and 3 pints per week, since on account of their numbers of children of school age, they could have obtained per week well over 3 pints per person over 5 years old.

One might have expected the families with the smallest milk consumption to be those with the smallest average expenditure on food. This, however, is not the case. In both Tables 1a and 1b, we find families with a very small expenditure on food and a satisfactory consumption of fresh milk, and in both Tables we also find families whose outlay on food was fairly high, and whose consumption of milk was low. One family, spending on food per 'man' per week over 17s., bought in fact no fresh milk except the Government milk allowed for their 3 infants, their only supplementary milk consumption being one tin of evaporated milk per week, for three adults and one child of school age. None of the families with a very low consumption of milk purchased any patent milk food for their infants.¹

¹ National dried milk for infants supplied in lieu of fresh Government milk has been counted by us as Government milk,

In Table 1c we have taken the same families considered in Table 1b, but we have now added together the ordinary fresh milk bought by a

TABLE 1c
77 Families with Children under 6 years old

Domestic Consumption of Fresh Milk *including* Government Milk, per Person per Week (Figures in columns: Heavy type, total no. of families; below: average nos. per family of persons over 14; children 6—14; Children under 6.)

Food per 'Man' per Week Under 10s.	under 2 pints	2 pints +	3 pints +	4 pints +	5 pints +	6 pints +	7 pints and over
10s. +	—	—	—	1 2.0; 3.0; 1.0	—	—	—
11s. +	2 3.5; 4.0; 1.5	2 4.0; 2.0; 1.0	3 2.0; 3.0; 2.3	—	—	—	—
12s. +	—	1 2.0; —; 1.0	3 3.3; 3.0; 2.0	1 4.0; 2.0; 1.0	—	—	—
13s. +	—	1 3.0; 2.0; 1.0	1 2.0; —; 2.0	1 2.0; 1.0; 1.0	2 2.0; 0.5; 2.5	—	—
14s. +	—	3 2.7; 2.3; 1.0	3 2.3; 3.0; 1.3	4 2.0; 2.7; 1.8	1 2.0; 2.0; 1.0	—	—
15s. +	—	3 2.3; 1.7; 1.7	4 2.5; 1.3; 1.0	1 2.0; 1.0; 1.0	—	—	—
16s. +	—	—	1 2.0; 1.0; 1.0	1 2.0; 4.0; 1.0	3 1.7; 0.7; 2.0	1 2.0; —; 2.0	1 2.0; —; 1.0
17s. +	—	—	—	5 ¹ 2.6; 1.2; 1.4	2 2.0; 1.0; 1.0	—	—
18s. +	—	1 3.0; 2.0; 2.0	1 3.0; 1.0; 3.0	2 2.0; 0.5; 1.5	2 2.0; 1.0; 1.5	1 2.0; —; 2.0	1 2.0; 1.0; 2.0
19s. and over	—	—	1 7.0; —; 1.0	—	—	—	2 2.0; —; 2.0
	—	—	1 4.0; —; 1.0	3 ¹ 2.0; 0.7; 1.0	6 2.0; 0.7; 1.3	3 2.0; 0.7; 1.3	2 1.5; 0.5; 1.5
	2 3.5; 4.0; 1.5	11 2.8; 1.8; 1.3	18 2.8; 1.9; 1.6	19 2.3; 1.6; 1.3	16 1.9; 0.8; 1.6	5 2.0; 0.4; 1.6	6 1.8; 0.3; 1.7

¹ Including children at school over 14 years old.

² 2s. 6d. was spent per week on Ostermilk by one family in this group.

family per week, and the Government milk allowed per week for their young children, and have divided this quantity by the total number of persons in the family. The picture obtained by Table 1c corresponds much more closely to that of Table 1a than that of Table 1b, as is brought out particularly strikingly in the summary of Tables 1a, 1c, and 1b (in this sequence), given in Table 2. The inevitable conclusion of this is that by a number of families the milk obtained under the Government scheme for infants, is treated as ordinary milk and used partly for other members of the family.

It would, however, be quite wrong to assume that in most cases this is done in order to economize in the expenditure on food. The main reason seems to be that older infants are sometimes given large quantities of foods that are more expensive but less suitable than milk, and which prevent them from drinking as much milk as they should have. It is frequently the most conscientious mothers, who try to make their infant eat all the rations to which he is entitled—an impossible undertaking—that find their child refusing part of his milk allowance.

TABLE 2
Domestic Consumption of Fresh Milk per Person per Week

	Total Group	No ord. fresh milk	under 2 pts.	2 pts. +	3 pts. +	4 pts.	5 pts.	6 pts. and over
	Nos.	%	%	%	%	%	%	%
(I) Families with no Children under 6 years old (Table 1a).								
Families ...	74	100	—	4	23	39	23	10
Persons over 14 ...	210	100	—	6	25	37	23	8
Children 6—14 ¹ ...	109	100	—	8	24	44	17	6
(II) Families with Children under 6 year old (Table 1c). (Government Milk and Ordinary Fresh Milk)								
Families ...	77	100	—	3	14	23	25	21
Persons over 14 ...	184	100	—	4	17	28	23	17
Children 6—14 ¹ ...	110	100	—	7	18	31	28	12
Children under 6 ...	114	100	—	3	12	25	22	22
(III) Families with Children under 6 years old (Table 1b). (Excluding Government Milk and Children receiving it: all Children under 6 years old).								
Families ...	77	100	4	14	26	26	13	8
Persons over 14 ...	184	100	4	16	30	26	11	6
Children 6—14 ¹ ...	110	100	2	24	35	23	11	3
Children under 6 ...	114	100	6	15	25	23	13	7

¹ Including children at school over 14 years old.

TABLE 3a

Consumption of School Milk and Domestic Consumption of Fresh, Tinned, and Household Milk (in terms of liquid Milk)

Domestic Milk Consumption Per Person per Week	Families	Number of Children School	Nos. of Children none	1½ pt. per week	3½ pt. per week
Under 2 pt. ...	1	3	3	—	—
2 pints + ...	14	29	7	14	8
3 pints + ...	22	43	2	28	13
4 pints + ...	12	20	8	5	7
5 pints + ...	5	7	1	4	2
6 pints and over ...	2	2	—	1	1
	56	104	21	52	31

TABLE 3b

Consumption of School Milk and Domestic Consumption of All Non-Priority Milk (in terms of liquid milk)

Dom. Milk Cons. Per Non-Priority Person p. Week	Families	Number of Children under School Age ¹	Children at School	Nos. of Children none	1½ pt. per week	3½ pt. per week
Under 2 pt. ...	10	19	26	2	22 ^a	6 ^a
2 pints + ...	16	23	34	9	18 ^a	12 ^a
3 pints + ...	14	21	31	4	19 ^a	12 ^a
4 pints + ...	9	13	13	4	7	2
5 pints + ...	3	3	4	—	—	4
6 pints and over ...	2	4	2	—	—	2
	54	83	110	19	66 ^a	38 ^b

¹ All the children in this group were priority consumers receiving 7 pints of Government milk per week.

^a Two of these children were also in receipt of Government milk.

^a Three of these children were also in receipt of Government milk.

^a Six of these children were also in receipt of Government milk.

^a Seven of these children were also in receipt of Government milk.

The consumption of school milk in relation to the domestic consumption of milk by the families of our sample is considered in Tables 3a and 3b. There were 110 families having 214 children over 5 years old that could obtain milk at school. For five other children of school age this was not certain, and we have disregarded these in our computations for Tables 3a and 3b. The figures in both these Tables indicate a tendency for a large consumption of milk at home to be accompanied by a large consumption of milk at school. That is as one would have expected it to be: children accustomed to milk and milk foods at home like, as a rule, the taste of milk, and drink it willingly at school.

We have indicated in Table 3b those instances in which a child receiving 7 pints of Government milk per week was also consuming milk at a nursery school. There were six children attending a nursery school for half the day and seven children attending it for the whole day, these latter children obtaining there three and two-thirds pints of milk per week, in addition to their luncheon, and bread and butter, etc., for tea. In these cases the mothers may find that in order not to waste part of the milk obtained under the Government scheme they have to use it for other members of the family.

THE COAL SHORTAGE

PART II. FUTURE PROSPECTS

The first article dealt with the immediate emergency. In this the second estimates of the future demand for and supply of coal are used as a basis for a discussion of the longer-term prospects of the industry.

(a) *The Prospects for 1948.*

The first problem is to estimate what the demand for coal will be in 1948.

Coal is such an essential raw material to most industries, either in raw or derivative condition, that the industrial demand for coal can be expected to vary in the first instance with the level of output, *i.e.* the real national income. Technical changes within industries will not be of great importance, for usually the quantity of fuel incorporated in each unit of output is not greatly affected, and may be either increased or diminished. There may, however, be a tendency in the long run for production to shift from 'heavy' industries to 'light' industries and from industry as a whole to distribution and other services, so that the demand for coal may be a function of national income that decreases with time.¹

There is also likely to be a strong association between the domestic demand for coal (in both raw and derivative forms) and the level of real national income.

Table I shows national income (at 1938 prices) and inland coal consumption for the years 1928-1940. (before 1928 consumption was considerably affected by strikes, and after 1940 by wartime restrictions on use).

TABLE I. *U.K. National Income and Inland Coal Consumption, 1928-1940.*

				National Income* at 1938 Prices (£'000 millions)	Inland Coal Consumption † (millions of tons)
1928	...	...	...	4.11	170
1929	...	...	...	4.25	181
1930	...	...	...	4.07	174
1931	...	...	...	3.98	162
1932	...	...	...	4.02	156
1933	...	...	...	4.11	154
1934	...	...	...	4.29	168
1935	...	...	...	4.52	171
1936	...	...	...	4.70	182
1937	...	...	...	4.79	188
1938	...	...	...	4.61	181
1939	...	...	...	4.88	184
1940	...	...	...	5.03	197

* For 1928-37 estimates are obtained by applying the index shown in 'Studies in the National Income', edited by Bowley (p. 195, Table B, line 9) to the 1938 estimate given in 'National Income and Expenditure of the United Kingdom' (Cmd. 6784). For 1939 and 1940, the index numbers shown by Mr. Champernowne (BULLETIN, Vol. 8, No. 5, p. 131) for the national cost price of consumers' goods were applied to the National Income estimates in Cmd. 6784. Dr. Bowley's index is actually based on 1935 weights, and Mr. Champernowne's on an average of 1938 and 1945 weights; but the error would not be very considerable.

† Ministry of Fuel and Power, Statistical Digest, 1945. The figures given are actually for coal 'available for inland consumption' since no allowance is made for stock movements.

¹ When we examine the trend through time, we find a similar result. In every case we find the proportion engaged in primary industry declining and in tertiary industry increas-

It will be seen that coal consumption and national income do in fact tend to move in mutual sympathy, as has been suggested,¹ but that coal consumption appears to be a decreasing function of national income with time.² The regression equation found by partial correlation between Coal Consumption (C) (in millions of tons), National Income (Y) (in thousands of millions of pounds, at 1938 prices) and Time (t) (the number of years since 1938) is:—

$$C_1 = 50.1Y - 2.1t - 33.8 \quad \dots\dots\dots (1)$$

From 1932 on, however, there is little evidence of a time factor operating, and C and Y are more closely associated.³ It is, therefore, also possible to estimate C on the alternative hypothesis that the demand for coal had undergone a relative decline in the early years of the depression due to structural changes in the economy, but that this fall ceased in 1933. On this assumption we have the following regression equation:—

$$C_2 = 44.9Y - 29.2 \quad \dots\dots\dots (2)$$

Table II shows the effective demand for coal by each formula, compared with actual consumption.

TABLE II
The Actual and Estimated Inland Consumption of Coal, 1928-1940.
(Millions of tons).

<i>Actual Consumption*</i>				C_1	C_2
1928	...	...	170	172	—
1929	...	...	181	177	—
1930	...	...	174	166	—
1931	...	...	162	159	—
1932	...	...	156	159	—
1933	...	...	154	162	155
1934	...	...	168	169	163
1935	...	...	171	178	174
1936	...	...	182	185	182
1937	...	...	188	187	186
1938	...	...	181	176	178
1939	...	...	184	188	190
1940	...	...	197	193	197

*See note to Table I above.

It will be seen that both formulae give fairly good results for the period concerned, especially when the dimensions of possible error in the data are taken into account. The next step is to forecast the national income in 1948 (at 1938 prices) for substitution in the formulae.

ing. The proportion of the population engaged in secondary industry appears in every country to rise to a maximum and then to begin falling, apparently indicating that each country reaches a stage of maximum industrialisation beyond which industry begins to decline relative to tertiary production.' Colin Clark, *The Conditions of Economic Progress* (p. 7).

¹ If Y = National Income (at 1938 prices) and C = Inland Coal Consumption,

$r_{CY} = .854$

² If t = time in years,

$r_{CT.Y} = -.536$.

³ For the period 1932-1940, $r_{CY} = .949$.

The national income in 1946 (at 1938 prices) can be tentatively estimated at £5.59 thousand millions.¹

(Since this estimate is based on a consumers' goods price index, and consumers' goods may have increased less rapidly in cost than other products such as defence services and capital goods, it may over-estimate the increase in real income).

In view of the shortening hours of work and possibly further difficulties in obtaining material supplies it is unlikely that the real national income will be much higher in 1948 than it was in 1946. We shall, therefore, forecast real national income in 1948 (at 1938 prices) as £5.6 thousand millions, compared with £4.61 millions in 1938. We then have two forecasts for the effective demand for coal next year. In calculating C_1 , we shall assume that there was no time factor operating after 1940 (*i.e.* 't' equals 12, not 20). On this assumption C_1 and C_2 both equal 222 million tons. We shall allow 10 million tons extra for the poorer calorific value of coal being currently produced, and deduct 7 million tons for the permanent effects of current restrictions (conversions to oil, etc.). This gives us 225 million tons as our estimated demand in 1948.²

This is not a forecast of how much would be bought in the probable condition of the economy next year if coal were freely available, for in a period of suppressed inflation the demand for any single widely used commodity that is freely available is abnormally high, because of the absence of other outlets for spending. Nor does it take into account the full (temporary) effect of restrictions by exhortation, rationing, 'load-shedding', conversion to oil, etc. It is merely an estimate of the 'normal' demand for coal appropriate to the anticipated real national income, extrapolating from past experience.³

No allowance is made for the effects of income redistribution on coal consumption, which one might expect it to increase.⁴ On the other hand there has been a large increase in military service compared with pre-war, and this may have caused a relative fall in the demand for coal. Also the rise in real income has probably been over-estimated, for reasons explained

¹ The national income at current prices (Cmd. 6784), deflated by the increase in national cost price of consumers' goods. Taking 1945 as 100, the index number for this price in 1938 was 67.6 (Mr. Champernowne, BULLETIN, Vol. 8, p. 131), and for 1946 an index number of 102.6 is implied in an estimate that consumers' goods bought in 1946 would have cost £5,282 millions at 1945 prices (an unpublished estimate by Mr. Champernowne).

² Price fluctuations are ignored. The price of fuel and light has risen 53 per cent since Sept. 1st, 1939, according to the Ministry of Labour's cost of living index (Monthly Digest of Statistics, March 1947). Wholesale coal prices have more than doubled, but other fuel prices have not risen so much. This figure compares with a general rise of 80.6 per cent in all wholesale prices since 1938 (Monthly Digest of Statistics, March 1947), and a rise of rather over 50 per cent in the market price of consumers' goods (see Champernowne's estimates cited above). Fuel prices have, therefore, probably not risen so greatly as to upset the relationship between income and the demand for coal, though they have risen in such a way as to be partly responsible for the greatly increased consumption of electricity and gas.

³ The estimate may seem abnormally large, but the suppression of demand by restrictions may be judged from the fact that domestic consumption of raw coal and boiler fuel, which was 46 million tons in 1938, had fallen to 31 million tons in 1946. (Digest of Statistics).

⁴ The demand for coal out of income increments is likely to be higher for low income than for high income groups.

above. The estimate given must be treated with caution, in view of these uncertainties, but the connection between national income and coal consumption was so strong before the war that it can be used as a starting point.

Output in 1948 can be estimated from the following assumptions: output per manshift (OMS) 10 per cent above 1946 levels,¹ average labour force of 750 thousand (*i.e.* that the rate of increase assumed in the *Economic Survey*, 10 thousand per quarter, continues), average attendance 4.6 shifts weekly and opencast production 20 per cent above 1946 levels. On these assumptions, total output will be 214 million tons in 1948. Provided stocks are adequately built up this year, there will not need to be any appreciable net stockbuilding in 1948. If we deduct 9 million tons for minimal exports and bunkers, this leaves 205 million tons for inland consumption.

It was suggested in Part I that 180 million tons are needed for inland consumption this year, on the assumption that output was concentrated in the most efficient fuel-using firms. The prospective expansion of output with further demobilisation, and less dislocation indicate the need for, say, 190 million tons in 1948, or 200 millions in the absence of concentration. We can, therefore provisionally expect, *provided productivity and the labour force continue to expand*, that in 1948 production will satisfy basic requirements, allowing a certain margin to be exported (a considerable margin if fuel is used in the most efficient possible way at home), but that it will not satisfy 'normal' requirements (as defined above), still less what the current demand for coal would be in the absence of restrictions on consumption.²

(b) *When Will the Shortage End?*

The deficiency next year between coal available and demanded (on the definition above) is forecast provisionally at 20 million tons. When will output be sufficient to cover domestic requirements, plus 10 million tons for minimal exports and bunkers? If we assume upward trends of x per cent per annum in coal production, and y per cent per annum in national income, the time in years after 1948 will be the lowest value of T that satisfies this condition³ :—

$$214 \left(1 + \frac{x}{100}\right)^T - 10 > 281 \left(1 + \frac{y}{100}\right)^T - 2.1T - 56 \quad \dots\dots\dots (3)$$

or

$$214 \left(1 + \frac{x}{100}\right)^T - 10 > 251 \left(1 + \frac{y}{100}\right)^T - 26 \quad \dots\dots\dots (4)$$

¹ The OMS in the first quarter of 1947 was approximately 3 per cent above that of the first quarter of 1946. There should be a larger increase in the next 12 months, owing to a higher proportion of miners at the coal face, fewer shifts worked, faster re-organisation, etc.

² As an alternative to exports, some restrictions on consumption could be eased, but it is doubtful whether the country's balance of payments would justify such a step, provided the shortage of coal is not hindering industry.

³ From formulae (1) and (2) respectively, taking the estimates for production and national income in 1948 given above. It is assumed that the present calorific value of coal will be maintained, and that there has been a 7 million ton fall in demand due to the permanent effects of restrictions.

We can work out what T would be assuming certain sets of values for x and y, as follows :—

TABLE III
Estimated Year in which Coal Production will first satisfy Internal Demand, on Various Assumptions.

1. From Formula (3).			
<i>Assumed annual rate of increase of coal production</i>	<i>Assumed annual rate of increase of real national income</i>		
5%	1%	2%	3%
10%	1951	1952	1953
	1950	1950	1950

2. From Formula (4)			
<i>Assumed annual rate of increase of coal production</i>	<i>Assumed annual rate of increase of real national income</i>		
5%	1%	2%	3%
10%	1951	1952	1954
	1950	1950	1950

An increase of 10 per cent in production in 1949 and a further increase of 10 per cent in 1950 would probably have to come mainly from higher OMS. Of the other two determinants of output, attendance cannot be expected to increase, and it is doubtful whether net increases of 5 per cent annually in the labour force can be achieved. However, it should be possible to raise OMS by at least 5 per cent annually once results are obtained from training, increasing the proportion at the coal face, mechanisation and pit reorganisation.

Provided the inflationary pressure is considerably diminished by 1950, we can expect output in that year to be sufficient to satisfy domestic demand. Assuming a 10 per cent increase in production annually from 1948 and 2 per cent rise in the real national income, production in 1950 will be 259 million tons, and the demand for coal, including bunkers and minimal exports, 254 millions tons.¹

It does not follow, of course, that all restrictions can be lifted then. Whether it will be wiser to do this or to export a considerable amount of coal depends on the general state of the economy, and cannot be decided now. The indications are, however, that extra exports will be urgently needed, and that the seller's market in coal is likely to be more reliable than that for many other products. The political changes in Europe, involving higher working-class living standards and plans for rapid industrialisation, guarantee a seller's market well into the 1950's. During this period coal can be a most valuable export. There is, therefore, a strong reason for encouraging efficiency of fuel utilisation in both industry and the home by introducing 'district heating', improving domestic space- and water-heating efficiency, and modernising industrial power and heating. Every effort also needs to be made in the immediate future to raise coal output. This implies a continuance of the policies mentioned in Part I—wages and conditions to be raised suffi-

¹ From formula (1).

ciently to attract and maintain a large labour force,¹ special supplies of consumers' goods to be available to mine canteens, and a superannuation scheme to be introduced. In addition a larger share in control of the industry, especially at lower levels, may become of increasing importance to miners after a new wage-structure has been achieved. It may not be possible to meet this demand satisfactorily within the framework of management at present envisaged, and the technical costs of modifying this framework, especially at the lower levels (i.e. regional and pit management), to permit direct representation of the operatives, must be weighed against the possibly beneficial effect of such modification on incentives, and therefore on productivity.

(c) *Long-Term Policy.*

Britain has much leeway to make up in increasing productivity. The conclusions of what is generally known as the Reid Report were that substantial increases could be made by increased mechanisation and by 'the examination of the problems on a coalfield basis rather than pit by pit',² which will involve reconstructing some pits, closing others, and sinking many new ones. The Report draws attention to the way in which Britain has fallen behind continental producers³—

TABLE IV
OMS in Poland, Holland, the Ruhr and Britain.

Country					Basic year	OMS in Basic year (cwt.)	OMS in 1936 (cwt.)	Percentage Increase
Poland					1927	23.44	36.20	54
Holland					1925	16.48	35.94	118
The Ruhr					1925	18.62	33.66	81
Britain					1927	20.62	23.54	14

(Source : Cmd. 6610, p. 29).

The Report states : ' We see no reason why, in so far as natural conditions are concerned, Britain should not be able to catch up, in due course, the productivity per man of these countries.' This indicates a long-term target OMS of the order of 40 cwt.⁴

Let us make certain arbitrary assumptions, in order to show the possible trend of coal prices relative to other prices. Let us assume that eventually it is found necessary to keep mining wage-rates 50 per cent above the general wage-level to maintain the coal labour force (hourly wage rates in 1938 having been about the same as general wage rates), that the 1938 OMS doubles by 1968, during which time productivity in all other industries increases 50 per cent. If price is a function of wage-cost, which in turn is a

¹ The elasticity of demand for coal is at present so low that the effect of resultant price increases on overseas demand can be ignored.

² Cmd. 6610, p. 136.

³ According to D. R. Grenfell, M.P., (*Coal*, p. 31), British O.M.S. was not much below one ton at the beginning of the past century.

⁴ A figure mentioned as a possible target by Sir Hubert Houldsworth, war-time Controller-General of the Ministry of Fuel and Power, quoted in ' New Deal for Coal,' by Harold Wilson., p. 141.

function of wage-rates and productivity, then the increase of relative mining wages will be balanced by an increase in relative mining productivity (compared with other industries) leaving relative wage-costs and relative prices only slightly higher. So far as domestic costs of coal are concerned there is therefore no long-term cause for alarm—provided productivity can be raised by this extent.

But we cannot expect overseas competitors to stand still meanwhile. Since many of them had by 1939 almost achieved our OMS 'target' of 40 cwt., they will doubtless still be in a favourable competitive position, especially in view of the low wage standards abroad (though European miners are also benefiting from the world coal shortage).

When the short-term international demand for coal is met by increased supplies, the British industry may well be unable to face continental price competition. And the home market will not be able to absorb all that is produced. In the late 1950's a labour force of 700,500, with an OMS of 1.7 tons would be producing nearly 300 million tons a year¹ compared with 265 millions needed for domestic consumption (if the national income rises 2 per cent annually).²

There are in addition the prospects of competition from atomic energy derivatives. On the other hand new uses for coal as a source of chemical products may develop. Let us, however, abstract from the effects of technical changes of this sort, which are uncertain. Since the home market can be expected to continue to expand, and there may be new markets in what are now colonial countries, as their national income rises, it should be possible to meet the situation without causing unemployment, by cutting down recruitment. We can expect to have to plan eventually for a declining labour force. This is virtually inevitable in view of the relative inefficiency of our coal production compared to overseas producers. In fact, if the anticipated increase in productivity does not materialise we might have to consider becoming a permanent importer of coal, saving the country the cost of maintaining a large industry which is expensive in the human costs it involves and therefore (under Full Employment) in wages.³ This possibility does not in any case affect the argument for increasing the present labour force as rapidly as possible, an argument based on very certain and immediate considerations.

D. SEERS.

¹ Assuming average attendance of 4.5 shifts weekly.

² From formula (3).

³ Though this raises such extra economic questions as defence strategy.

TABULAR APPENDIX.

EDITORIAL NOTE

The following tables illustrate the economic developments in U.S.A. and individual European countries by presenting the trend of production, prices and foreign trade in recent months compared with typical war and pre-war years.

Explanation of symbols :

- ... the figure is not available.
- () figures provisional or approximate.
- figure is negligible.

TABLE I. UNITED STATES.

Index Nos. 1935-39=100 ¹	Monthly Averages			1946				1947	
	1941	1945	1946	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.*
Income Payments—Index	138	239	245	246	255	259	262	264	263
Consumer Expenditures—									
Quarterly Index	124	179	216	220	...	...	231	...	...
Dept. Store Sales—									
Value Index ...	133	207	264	269	257	272	274	265	268
Vol. Index of Farm Mktgs.	115	137	138	111	143	156	154	166	145
Employmt. ² , Millions	35.7	38.1	39.0	40.1	40.2	40.5	40.7	39.5	39.4
Unemployt., Millions	5.0	1.1	2.3	2.1	2.0	1.9	2.1	2.4	2.5
Buildg. Contr. Awarded :									
Value Index ...	213	119	266	264	252	242	268	254	259
Vol. Index ⁴ ...	183	86	168	162	154	146	156	144	147
Ind. Production Index :									
Durable ...	201	274	192	212	213	213	210	220	222
Non-Durable ...	142	166	164	164	168	172	173	177	176
Minerals ...	125	137	136	146	145	136	136	145	145
Manuf. Orders—Index ⁵	203	189	211	228	228	234	236	241	242
Manuf. Inventories :									
Index ⁶ ...	158	164	203	190	197	200	204	204	208
Wholesale Price Index :									
Farm Products ...	108	169	198	204	218	224	222	217	224
Foods ...	105	134	165	167	200	209	203	198	205
All others ...	110	123	136	138	142	148	152	157	158
Cost of Living Index	105	128	139	146	149	152	154	153	153
Facty. Av. Hrly. Earnings									
cts. ...	73	102	108	113	113	114	115	116	117
Imports : Total, Mill. \$	279	344	410	378	394	481	536	533	435
from Europe, Mill. \$	24	...	66	58	64	76	89	...	...
Exports : Total, Mill. \$	427	820	812	643	537	987	1097	1116	1153
to Europe, Mill. \$	128	...	342	234	169	390	361	...	...
Lend-Lease Exports, Mill. \$	61.7	463	54.5	12.5	7.6	8.6	7.2	...	...

Sources : Bureau of the Census for Unemployment ; U.S. Department for Commerce for Income Payments, Consumer Expenditures, Farm Marketings, Manufacturer's Orders and Inventories, and Foreign Trade ; U.S. Department of Labor for Employment Prices and Wages ; Federal Reserve Board for Dept. Store Sales, Building Contracts and Ind. Production.

¹ All index numbers, except those of prices and of manufacturer's orders and inventories, are adjusted for seasonal variations.

² Partly provisional. ³ All employees in non-agricultural establishments.

⁴ Value Index deflated with the (Engineering News Record) Index of Construction Costs.

⁵ 1939=100.

TABLE II. UNITED KINGDOM¹

	Unit	Monthly Averages			1946			1947		
		1938	1945	1946	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Production of :										
Steel (Weekly av.)	1,000 tons	200	227	244	254	264	236	240	206	196
Cement ² ...	1,000 tons	643	338	548	766 ³	571	517	550 ³	192	366
*Bricks ...	Millions	650	102	288	442	392	353	379	247	275
Passenger Cars	Thousands	28.0	1.4	18.3	26.8	25.3	26.8	25.0	9.9	22.1
Comm. Vehicles	Thousands	8.8	10.2	12.2	14.2	14.2	13.2	13.2	5.8	11.3
Merch. Vessels ⁴	Mill. gross tons	1.0	1.46	1.76	1.68	1.76	1.76	1.80	1.76	1.80
Electricity ...	1,000 Mill. kwh	2.0	3.1	3.4	3.7	3.9	4.4	4.7	3.7	4.0
Gas (weekly av.)	Mill. th.	31.9	39.1	42.4	41.9	46.4	50.2	50.8	53.3	50.9
*Perman. Houses ⁶	Thousands	30.0	0.22	4.12	7.45	7.35	9.00	7.95	3.84	5.97
*Employment: Total ¹	Millions	17.9	16.3	17.3	17.9	18.0	18.0	18.1	...	18.0
*Manuf. Ind. ...	Millions	6.8	6.8	6.6	6.9	7.0	7.0	7.0	...	7.0
*Manuf. Exports	Millions	1.0	0.41	1.31	1.42	1.44	1.46	1.48	...	1.47
*Unemployment ⁷ ...	Thousands	1,688	103	359	366	367	363	401	1,874	761
*Retail sales (weekly) ⁸	1938=100	100	116	137	147	154	169	133	135	...
Wholesale Prices ...										
Food and Tobacco	"	100	163	163	162	161	161	161	163	163
Ind. Prod. ...	"	100	169	178	182	185	186	189	191	191
Cost of Living ...	"	100	130	130	130	130	131	131	130	131
Weekly Wage Rates	Sept. '39=100	...	150	162	164	164	165	165	165	166
Ret. Imports ...	£ Mill.	77	92	108	127	124	117	121	113	130
U.K. Exports ...	"	39	33	76	91	92	83	91	76	83
Terms of Trade ⁹ ...	1938=100	100	93	95	94	93.5	93	94.5	95	96

Sources : Monthly Digest of Statistics ; Ministry of Labour Gazette ; Board of Trade Journal.

¹ Figures for items marked* refer to Great Britain.

² Production figures from November 1946 onward relate to periods of four weeks.

³ Five weeks. ⁴ Tonnage under construction at end of period, 100 gross tons and over. ⁵ Completed.

⁶ Including employers and self-employed, but excluding Forces, Auxiliary Services, Civil Defence, Police and private domestic service. All annual employment figures refer to mid-year.

⁷ Number of insured workers registered as wholly unemployed or temporarily stopped. Mid-yearly or mid-monthly figures.

⁸ Revised. ⁹ Ratio of export prices to import prices.

TABLE III. FRANCE

	Unit	Monthly Averages			1946			1947		
		1938	1945	1946	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Production of :										
Coal ¹ ...	Mill m. tons	4.0	2.9	4.1	4.7	4.2	4.2	4.6	4.3	4.6
Electricity ...	000 Mill. KWH	1.5	1.4	1.8	2.0	2.0	2.2	...	...	...
Steel ...	Mill m. tons	518	134	369	486	460	457	486	478	488
Cement ...	000 m. tons	290	127	281	376	352	361	286	...	...
Comm. Vehicles	Thousands	3.3	2.7	5.2	6.7	5.8	5.2	6.6	...	...
Passenger Cars ...	"	15.2	0.1	2.5	4.5	4.0	3.9	5.0	...	...
Cotton Fabr. ...	000 m. tons	12.1	2.7	8.4	11.0	9.6	9.6	...	...	...
Building Plans ² ...	000 cbm	706	151	...	425	706	...	...	...	...
Wagon loadings (daily)	Thousands	41	17	30	36	36	33	...	...	...
Employment ³										
Numbers ...	1939=100	...	88	93	96	...	...	...	...	...
Hours worked ...	"	...	92	99	103	...	...	...	...	...
Wholesale Prices ⁴ ...	1938=100	100	375	648	824	806	842	867	882	...
Retail Prices ⁵ ...	"	100	393	645	858	856	865	856	858	...
Imports ...	000 Mill. frs.	3.8	4.6	19.5	23.5	19.2	23.0	23.7	25.8	27.4
Exports ...	" " "	2.5	0.9	8.5	11.0	14.5	16.1	14.5	17.1	16.3

Source : Bulletin de la Statistique Générale de la France,

¹ Incl. lignite. ² In Paris and 98 towns. ³ Wage-earners. Base : April 1939=100.

⁴ 1938 weights. ⁵ Retail prices in Paris of 34 articles.

TABLE IV. BELGIUM.

	Unit	Monthly Averages			1946			1947	
		1939	1945	1946	Oct.	Nov.	Dec.	Jan.	Feb.
Production :									
Coal ...	Mill m. tons	2.5	1.3	1.9	2.1	1.96	1.89	2.15	1.96
Steel ...	000 m. tons	259	61	191	236	220	223	231	...
Cement ...	" "	213	54	158	226	209	182	181	...
Electricity ...	Mill. KWH	466	382	520	589	582	618	646	...
Textile Ind. ...	1938=100	113	38	92	114	106	106	...	...
Paper Ind. ...	" "	120	26	109	127	118	106	124	...
Buildg. Activity ¹	Thousands	2.2	1.1	2.4	4.1	2.6	2.7	...	...
Unemployment ²	" "	195	145	67	37	43	81	90	131
Retail Prices ...	1936-38=100	...	...	...	...	...	...	333	332
Imports ...	000 mill. frs.	1.6	1.1	4.4	6.4	6.6	6.1	6.0	5.2
Exports ...	" " "	1.8	0.3	2.5	3.7	3.1	4.0	2.7	4.4

Source : Institut National de Statistique ; Banque Nationale de Belgique.

¹ Number of units newly constructed and reconstructed.

² Daily average of registered unemployed.

TABLE V. NETHERLANDS.

Index Numbers 1938=100	Unit	Monthly Averages			1946			1947	
		1939	1945	1946	Oct.	Nov.	Dec.	Jan.	Feb.
Production :									
Coal ...	Index	96	38	62	72	71	64	74	...
Electricity ...	"	111	49	113	136	145	148	...	...
Cement ...	"	119	56	89	108	96	78	24	...
Butter ...	"	105	37	49	57	48	35	...	...
Cheese ...	"	96	30	60	63	35	23	27	...
Unemployed ¹	000's	236	98 ²	53	38	39	47	52	...
Wage rates :									
Industry ...	1938-39=100	101	150 ²	163	165	165	165	...	...
Agriculture ...	"	100	225 ²	236	241	241	241	...	...
Imports ...	Mill. fl.	126	...	179	211	239	223	201	...
Exports ...	" "	81	16	66	110	126	128	108	...

Source : Central Bureau Voor De Statistiek ; Rotterdamsche Bankvereniging.

¹ Registered wholly unemployed, excluding public relief workers.

² Average June-December. ³ December.

TABLE VI. DENMARK.

Index Nos. 1938= 100	Unit	Monthly Averages			1946			1947	
		1939	1945	1946	Oct.	Nov.	Dec.	Jan.	Feb.
Production :									
Industrial ...	Index	105	79	96	103	104	105	106	10.5
Animal Products ...	"	103	68	75	75	73	72	...	...
Butter ...	000 m. tons	15.2	11.0	11.7	11.9	10.3	9.7	9.9	...
Bacon ...	"	21.3	14.3	15.7	17.2	15.3	17.3	...	...
Electricity ...	Mill. KWH	69 ¹	76	88	110	111	112	119	108
Wholesale Prices ...	Index	105	190	188	197	198	198	200	201
Cost of Living ...	"	101	159	158	...	159	...	159	...
Imports ...	Mill. Kr.	145	58	236	331	284	315	198	...
Exports ...	"	132	75	134	181	183	194	168	...

Source : Danmarks Statistics, Statistiske Efterretninger.

¹ 1938.

TABLE VII. NORWAY.

Index Nos. 1938 = 100	Unit	Monthly Averages			1946			1947	
		1939	1945	1946	Oct.	Nov.	Dec.	Jan.	Feb.
Ind. Production									
All Industr. ...	Index	107	69	100	108	115	108	109	119
Home Mkt. Ind. ...	"	108	81	116	125	134	125	126	129
Export Ind. ...	"	103	45	68	72	74	74	75	98
Electricity gen. ...	Mill. KWH	851	820	938	1061	1066	1113	1161	...
Retail Turnover ...	Value Ind.	105	120	182	208	200	261	175	...
Cost of Living ...	Index	101	155	159	160	161	161	160	161
Imports ...	Mill. Kr.	114	100	183	231	269	358	275	273
Exports ...	"	67	27	100	120	112	108	109	109

Source : Central Bureau of Statistics.

TABLE VIII. SWEDEN.

Index Nos. 1939 = 100	Unit	Monthly Averages			1946			1947	
		1939	1945	1946	Oct.	Nov.	Dec.	Jan.	Feb.
Ind. Production ...	Index	100	85	103	104	105	105	105	...
Ind. Employment ¹ ...	"	100	101	116	118	119	112	...	...
Unemployment ² ...	per cent.	9.2	4.5	3.3	2.1	2.5	3.8	4.5	...
Cost of Living ...	Index	100	149	149	150	150	150	152	...
Imports ...	Mill. Kr.	204	91	261	327	345	331	371	334
Exports ...	" "	157	147	210	238	220	237	222	119

Source : Index, Svenska Handelsbanken ; Quarterly Review, Skandinaviska Banken ; United Nations, Monthly Bulletin.

¹ Including mining.

² Percentage of total union membership.

TABLE IX. SWITZERLAND.

Index Nos. 1938 = 100	Unit	Monthly Averages			1946			1947	
		1938	1945	1946	Oct.	Nov.	Dec.	Jan.	Feb.
Employment :	Quart								
All Industries ...	Index	100	110	123	...	...	128	...	...
Building ...	"	100	89	108	...	...	103	...	...
Metal Ind. ...	"	100	122	138	...	...	142	...	...
Chemical Ind. ...	"	100	130	157	...	...	163	...	...
Textile ...	"	100	76	87	...	...	92	...	...
Food Ind. ...	"	100	106	120	...	...	127	...	...
Electricity gen. ¹ ...	Mill. KWH	448	666	696	710	635	608	564	467
Building Permits :									
New Flats ...	Numbers	703	752	1043	881	1024	1166	1166	946
Factories ² ...	"	93	167	267	...	...	273 ³	...	...
Tourism ⁴ ...	Thousands	630	264	506	479	356	491	598	544
Cost of Living ...	Index	100	152	152	154	154	154	154	154
Imports ...	Mill. frs.	134	102	285	304	331	367	330	312
Exports ...	" "	110	123	223	269	268	264	239	250

Source : Schweiz. Nationalbank ; Département Fédéral de l'Economie Publique.

¹ Public power stations. ² Incl. extensions and structural changes.

³ Monthly average, 4th quarter. ⁴ Number of nights spent by foreign tourists in Swiss Hotels.

TABLE X. ITALY

	Unit	Monthly Averages			1946				1947
		1939	1945	1946	Sept.	Oct.	Nov.	Dec.	Jan.
Production :									
Electricity ...	000 Mill KWH	1.3	0.9	1.3	1.5	1.4	1.3	1.3	1.2
Steel ...	000 m. tons	189	34	...	125	134	...	...	...
Coal Imports ...	" " "	1,100 ¹	...	353 ²	677	314	334	306	350
Cost of living	1938=100	...	...	2,248	1,954	2,203	2,448	2,633	2,830
Imports ³ ...	000 Mill. lire	0.9	...	...	10.4	9.6	...	...	...
Exports ...	" " "	0.9	...	...	5.7	6.9	...	...	...

Source : Istituto Centrale di Statistica.

¹ Average 1935, 1937 and 1938.

² Average April-December.

³ Incl. U.N.R.R.A.

TABLE XI. FINLAND.

Index Nos. 1939=100	Unit	Monthly Averages			1946				1947	
		1939	1945	1946	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
Production :										
Home Ind. ...	Index	100	56	74	82	74	81	86	...	...
Export Ind. ...	"	100	51	69	75	74	75	76	...	...
Electricity ...	Mill. KWH	259	247	244	228	256	265	260	270	242
Cement (Consump.)	Index	100	52	60	60	...	...	89	...	...
Wholesale Prices ¹	"	100	365	571	596	600	600	604	601	605
Cost of Living ...	1938-9=100	101	282	450	469	469	467	468	471	482
Imports ...	Mill. Mark.	631	572	2,027	2,387	2,316	2,274	2,538	2,832	2,304
Comm. Exports ...	"	643	436	1,920	2,392	3,243	2,907	2,560	1,961	1,170
Reparation Deliv.	"	...	585	731	856	660	529	1,278	...	...

Source : Unitas, Quarterly Review of Trade Conditions in Finland ; Monthly Bulletin, Bank of Finland. ¹ Revised.

TABLE XII. POLAND

	Unit	Monthly Averages			1946				1947
		1938 ¹	1945	1946	Sept.	Oct.	Nov.	Dec.	Jan.
Production :									
Coal ...	Mill. m. tons	3.2	2.0	3.9	4.2	4.6	4.5	4.2	4.5
Pig Iron ...	1,000 m. tons	74	21	61	61	66	60	56	...
Steel ...	"	120	45	102	100	109	112	111	...
Cement ...	"	143	33	117	154	147	107	132	...
Glass ...	"	2.1	3.5	3.4	3.7	4.2	3.8	4.4	...
Paper ...	"	17.1	3.4	12.4	14.6	16.0	14.7	15.1	...
Electricity	1,000 KWH	319	418	476	468	535	556	578	...
Cost of living ²	Index ²	...	77 ³	96	96	105	111	116	118

Source : Central Statistical Office of the Republic of Poland.

¹ Pre-war frontiers.

² At Warsaw ; base : April, 1945=100. The calculation is based on free-market prices supplied by the Municipality.

³ Average April-December.

TABLE XIII. CZECHOSLOVAKIA

	Unit	Monthly Averages			1946			1947	
		1937	1945	1946	Oct.	Nov.	Dec.	Jan.	Feb.
Production :									
Coal ...	000 m. tons	1,398	952	1,181	1,265	1,272	1,176	1,395	1,329
Electricity	Mill. KWH	334	341	464	520	554	537	571	537
Pig Iron ...	000 m. tons	140	48	80	89	96	98	113	103
Steel ...	"	192	79	139	155	169	146	191	172
Cement ...	"	106	...	77	99	95	53	...	...
Wh'sale Prices ¹	Jan.-March 1939=100	...	154	284	302	302	301	301	299
Cost of living ²	Jan.-June ³ 1939=100	...	168	305	303	303	305	306	...
Imports ...	Mill. Kr.	915	76 ³	853	1,267	1,349	1,788	1,529	...
Exports ...	" "	996	49 ³	1,195	1,811	1,869	2,670	1,938	...

¹ Bohemia, Moravia and Silesia ; from January, 1946, some products of Slovakia.

² At Prague. ³ May to December.

TABLE XIV. HUNGARY

	Unit	Monthly Averages				1946			1947	
		1937	1938	1945	1946	Oct.	Nov.	Dec.	Jan.	Feb.
Production of :										
Coal ...	000 m. tons	76	87	58	60	73	69	67	82	...
Lignite ...	" " "	671	693	343	466	539	561	518	628	...
Pig Iron ...	" " "	30	28	2	13	20	22	18	16	...
Bauxite ...	" " "	44	45	...	8	16	13	9	10	...
Petroleum ...	" " "	0.2	3.6	58	57	55	53	55	55	...
Wagon loadings	Thousands	108	114	...	47	76	71	57	53	...
Imports ¹ ...	Mill fl.	140	119	...	35	57	57	59	65	59
Exports ² ...	" "	171	151	...	41	59	81	94	63	47

Source : Office Central Hongrois de Statistique.

¹ Excluding U.N.N.R.A. imports.

² Excluding reparation deliveries.

TABLE XV. GERMANY : BRITISH ZONE

	Unit	monthly Averages		1946				1947	
		1936	1946	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
Ind. Production ...	1936=100	100	31	34	35	35	30	28	26
Prod. Goods ¹ ...	"	100	36	38	39	41	35	31	29
Cons. Goods ...	"	100	21	23	24	24	20	18	18
Prod. of :									
Coal (daily) ...	'000 tons	390	178	180	183	192	198	245	227
Steel ...	" "	1,156	194	241	234	207	177	149	163
Cement ...	" "	445	107	136	125	107	78	53	54
Potash ...	" "	31	17.8	18.2	20.0	20.4	15.7	14.6	8.7
Cotton Yarn ...	" "	10.5 ²	1.7	1.7	2.0	2.1	1.8	2.0	2.1
Imports ...	Mill. £	...	7.2	...	...	...	...	...	...
Exports ...	Mill. £	...	2.9	2.9	2.6	2.8	2.6	2.1	2.0 ³

Source : Statistical Bulletin of the Control Commission for Germany.

¹ Incl. investment goods (iron and steel, foundry products, vehicles, building materials, etc.) and producer goods for general requirements (coal, oil, gas, electricity and chemicals).

² Incl. some staple fibre.

³ March, 1947 : £1.5 million.